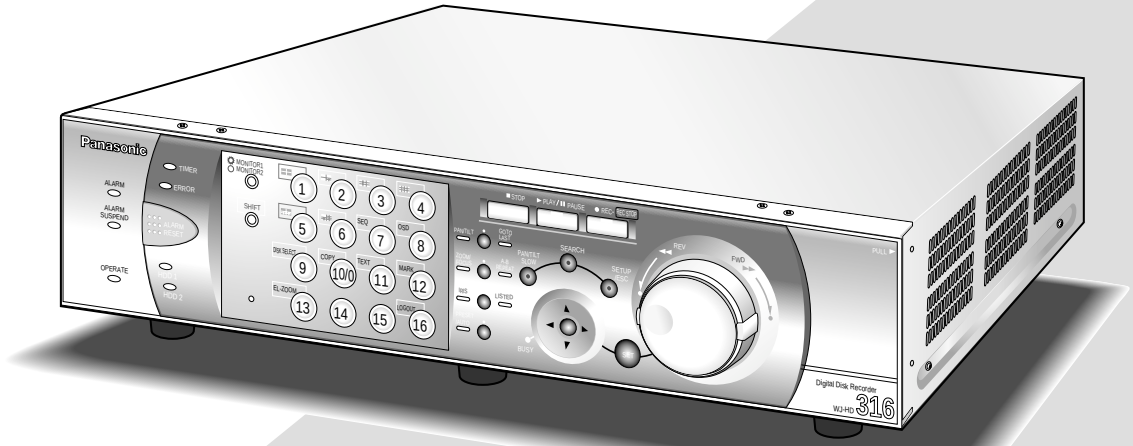
Panasonic

Digital Disk Recorders
Operating Instructions

Model No. WJ-HD309/HD316

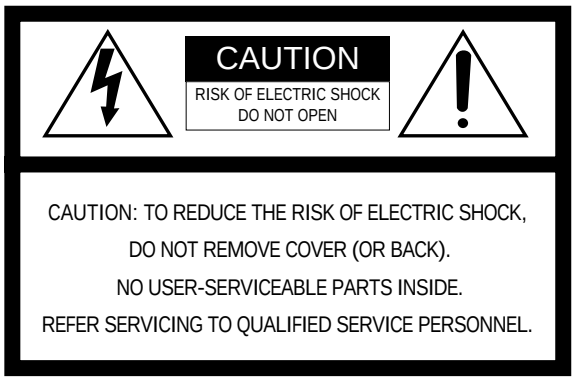


Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

ENGLISH VERSION

Caution:

Before attempting to connect or operate this product, please read the label on the bottom.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

SA 1965

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

SA 1966

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Power disconnection. Unit with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all units.

For U.S.A

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: To assure continued compliance, (example - use only shielded interface cables when connecting to computer or peripheral devices). Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

The serial number of this product may be found on the bottom of the unit.
You should note the serial number of this unit in the space provided and retain this book as a permanent record of your purchase to aid identification in the event of theft.

Model No. WJ-HD309/WJ-HD316

Serial No. _____

WARNING: To prevent fire or electric shock hazard, do not expose this appliance to rain or moisture. The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

IMPORTANT SAFETY INSTRUCTIONS

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) Do not use this apparatus near water.

6) Clean only with dry cloth.

7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8) Do not use near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the points where they exit from the apparatus.

11) Only use attachments/accessories specified by the manufacturer.

12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-overs.

13) Unplug this apparatus during lightning storms or when unused for long periods of time.

14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

CONTENTS

PREFACE

The Digital Disk Recorders WJ-HD316/309 are designed for use within a surveillance system and are combination of a hard disk recorder and a video multiplexer (16-input for WJ-HD316, 9-input for WJ-HD309).
Digital hard disk recorder is the recording device using a hard disk drive to record camera pictures instead of using videotapes so that pictures recorded by repeated overwriting will not cause deterioration of recorded picture quality anymore.

Up to 16 cameras can be connected to WJ-HD316 directly (up to 9 cameras to WJ-HD309) and it is possible to record their camera pictures. It is also possible to display four or more camera pictures on a single monitor, to switch camera pictures, and to operate cameras using this unit.

FEATURES

Various Recording Functions

- **Multi-Recording**
  It is possible to perform multiple recording using a single digital disk recorder even if operating environments are different, for example, recording pictures of cameras in different places in different time.

- **Scheduled recording**
  It is possible to perform recording automatically at a scheduled time on a designated day of a week. Schedules can be set on each camera.

- **Emergency Recording**
  In case of emergency, emergency recording will be given a higher priority than other recording modes by operating an external switch.

- **External Timer Recording**
  It is possible to perform recording automatically using an external timer.

- **Event Recording**
  At an event occurrence such as when an alarm signal is supplied, recording mode (quality and recording rate) can be changed to high quality to record pictures.

- **Motion Detection Function (VMD)**
  It is possible to start recording automatically when motion is detected in a shooting area.

Frame Switcher Function

- It is possible to display pictures of four or more cameras on a single monitor (multi-screen) splitting monitor screen into 4, 7, 9, 10, 13, 16 using WJ-HD316, and into 4, 7, 9 using WJ-HD309.
  While monitoring a multi-screen, each camera picture will be displayed as moving image.

Remote Operation via Network

It is possible to operate this unit using a PC connected to a LAN (Local Area Network) or the Internet by featured network function.

Security Function and Reliability

- Authentication function (registration of ID and password) restricts users available functions to be operated. Up to 32 users can be registered.

- If alteration of a recorded image data is made by any reason, the alteration alert function notifies it.

- If a hard disk clashes, the backup function[*1], the mirroring function[*2] and the RAID 5 function[*3] prevent from data loss.

[*1]: Only when the recommended DVD-RAM drive, DVD-R drive or CD-R drive is used
[*2]: The mirroring function does not work with an external hard disk drive such as an extension unit.
[*3]: To use the RAID 5 function, an optional extension unit is required.

Transmission with Coaxial Cable, PS·Data and RS485 Compatible

- It is possible to control a Panasonic's combination camera such as WV-CS850 using only a coaxial cable but other devices. Using a coaxial cable also compensates transmission loss.
- It is easy to establish the surveillance system by connecting PS·Data compatible system controller and peripherals.

PRECAUTIONS

- **Refer all work related to the installation of these products to qualified service personnel or system installers.**

- **Do not operate the appliances beyond their specified temperature, humidity, or power source ratings.**
  Use the appliance at temperatures within +5 °C - +45 °C (41 °F - 133 °F) and humidity below 90 %.
  The input power source for this appliance is 120 V AC 60 Hz.

- **Handle the appliance with care.**
  Do not strike or shake, as this may damage the appliance.

- **Do not strike or give a strong shock to the unit.**
  It may cause damage or allow water to enter the unit.

- **Built-in backup battery**
  Before the first use, charge the built-in backup battery by turning on the power for 48 hours or more.
  If it is not charged enough, in the case where the power goes down, the internal clock may keep bad time or the operative condition may be different to that before the electric power failure.
  The built-in battery life is approximately 5 years. Ask the shop where you purchased the unit when replacement of the battery is required.

- **Cooling Fan**
  The cooling fan is perishable. It will need to be replaced it after around 30 000 hours of operation.
  Replacement costs of the cooling fan are not covered by the warranty even if it needs to be done within the warranty period. Consult your dealer for servicing.

- **Cleaning**
  Turn the power off when cleaning the unit. Otherwise it may cause injuries.

  Do not use strong or abrasive detergents when cleaning the appliance body.
  Use a dry cloth to clean the appliance when it is dirty.
  When the dirt is hard to remove, use a mild detergent and wipe gently.

- **Built-in hard disk drives**
  Hard disk drives are vulnerable to vibration. Handle them with care.
  It is possible to damage them if they are moved while their motors are still running. Do not move them just after turning the power of them on or off (around 30 seconds).
  Hard disk drives are perishable. It will need to be replaced it after around 30 000 hours of operation in case they are used at temperature of 25 °C (77 °F).
  Replacement costs of the hard disk drives are not covered by the warranty even if it needs to be done within the warranty period. Consult your dealer for servicing.
  Set all the hard disk drives as master using the jumper pin. Refer to the diagram attached on the HDD or the operating instructions of the HDD for the jumper pin assignment.
  When a hard disk drive trouble occurred, replace it immediately. Consult your dealer for servicing.
  When replacing the hard disk drives, take notice that the followings.

1. Do not detach the hard disk drives or the cables connecting between the unit and the front cover while the HDD1/HDD2 indicators are lit or for around 30 seconds after the indicators went off.
2. Protect the hard disk drives from static electricity.
3. Do not stack them, nor keep them upright.
4. Do not use an electric screwdriver to fix them. (Tightening torque: Approx. 0.49 N · m (5 kgf · cm))
   Avoid the rapid change of the temperature/humidity to prevent condensation. (Acceptable change: within 15 °C/h (59 °F/h))

- **Indication label**
  Refer to the indication label placed on the bottom of the unit as to the indications of equipment classification and power source, etc.

- Avoid placing receptacles that contain liquids such as water near the unit.
  If liquid falls over the unit, it may cause fire or electric shock.

- Do not expose the unit to water or moisture, nor try to operate it in wet areas.

- Prevent condensation from forming on the surface of the hard disk.
  Wait until the dew evaporates in any of the following cases.
  The recorder is moved to a place significantly different in temperature or humidity.
  The recorder is moved out of an air-conditioned room.
  The recorder is placed in an extremely humid place.
  The recorder is placed in a room where a heater has just been turned on.

- We recommend that you make a note of your settings and save them. This will help you when required to change the system configuration, or when unexpected trouble or failure occurs.

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- Distributing, copying, disassembling, reverse compiling, reverse engineering, and also exporting in violation of export laws of the software provided with this product, is expressly prohibited.

About These Operating Instructions
There are 3 operating instructions for WJ-HD316/WJ-HD309 as follows.

- Operating Instructions (book, these operating instructions)
- Network Operating Instructions (pdf)
- Network Setup Instructions (pdf)

These "Operating Instructions" contains descriptions of how to operate this unit with the buttons on the front panel.
Refer to the "Network Operating Instructions" on the provided CD-ROM for descriptions of how to operate this unit from a PC.
Refer to the "Network Setup Instructions" on the provided CD-ROM for descriptions of how to perform the required settings and how to connect to other devices.
Adobe® Acrobat® Reader is required to read these operating instructions (pdf) on the provided CD-ROM. When the Adobe Acrobat Reader is not installed on the PC, download the latest Adobe Acrobat Reader from the Adobe web site and install it.

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(2) PERSONAL INJURY OR ANY DAMAGE CAUSED BY INAPPROPRIATE USE OR NEGLIGENT OPERATION OF THE USER;

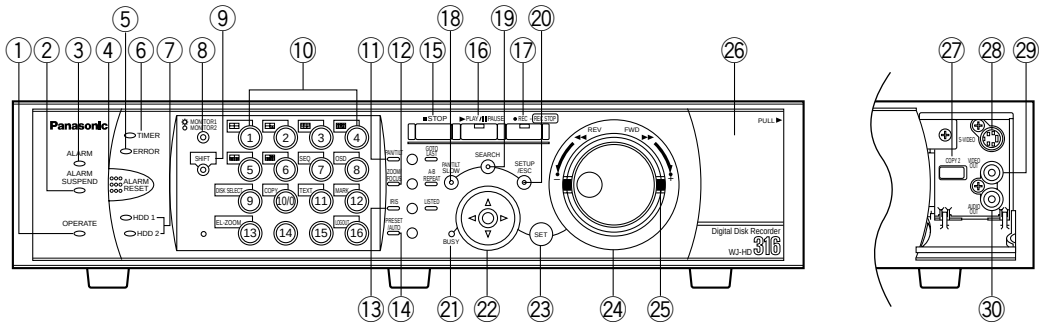
(3) UNAUTHORIZED DISASSEMBLE, REPAIR OR MODIFICATION OF THE PRODUCT BY THE USER;

(4) ANY PROBLEM, CONSEQUENTIAL INCONVENIENCE, OR LOSS OR DAMAGE, ARISING OUT OF THE SYSTEM COMBINED BY THE DEVICES OF THIRD PARTY.

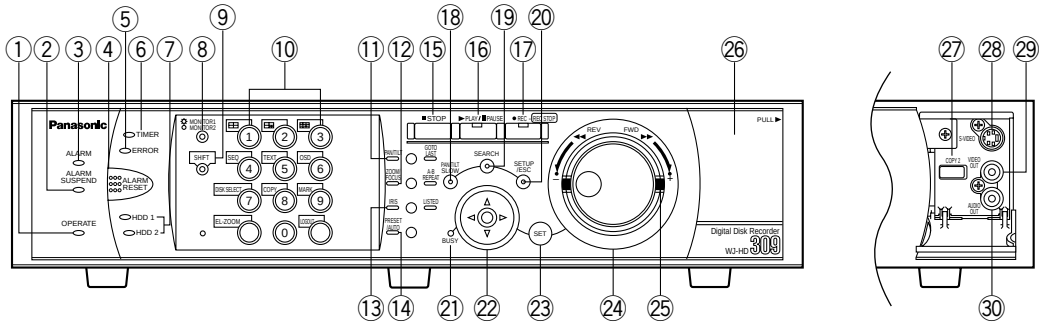
MAJOR OPERATING CONTROLS AND THEIR FUNCTIONS

■ Front View

[WJ-HD316]



[WJ-HD309]



① **Operate Indicator (OPERATE)**
Lights up when the power is turned on.

② **Alarm Suspension Indicator (ALARM SUSPEND)**
Lights up when the alarm suspension mode is selected.

③ **Alarm Indicator (ALARM)**
Blinks when an alarm occurs, and lights steadily when the activated alarm is reset automatically.
To turn this indicator off, press the ALARM RESET button.

④ **Alarm Reset Button (ALARM RESET)**
Pressing this button cancels alarm activation, and returns the system to the condition before the alarm was activated.

⑤ **Error indicator (ERROR)**
Blinks orange when an error that will not be an obstacle to keep on running this unit occurs.
Blinks red when an error that is possible to cause the system down occurs.

⑥ **Timer Indicator (TIMER)**
Lights up when the scheduled recording is set, and blinks while the scheduled recording is being performed.

⑦ **HDD Access Indicators (HDD1/HDD2)**
Blinks when the HDD1 or the HDD2 is accessed respectively.

⑧ **Monitor Switch button (MONITOR1/MONITOR2)**
Pressing this button switches the monitor. This button lights up when the monitor 1 is selected, and goes off when the monitor 2 or the VGA monitor is selected.

⑨ **Shift Button (SHIFT)**
Toggles the functions of the camera selection buttons.

⑩ **Camera Selection Buttons ([1] - [10/0], [11] - [16] for WJ-HD316, [1] - [9], [0] for WJ-HD309)**
Pressing a button displays live or playback image of the selected camera. The LED in the button indicates the status as follows.
Green: When a button is lit green, the currently displayed image on the monitor is live from a respective camera.
Orange: When a button is lit orange, the image from a respective camera is recorded.
Blue: When a button is lit blue, the currently displayed image on the monitor is live from a respective camera and also is recorded.

When the shift button is lit, these buttons work as the toggled function buttons.
(The buttons available as the toggled function buttons will light green when the shift button is lit.)

⑪ **Pan, Tilt, Latest Recorded Image Playback Button (PAN/TILT, GO TO LAST)**
Pans/tilts a selected camera, or playbacks the latest recorded image.
(Refer to page XX and XX respectively.)

⑫ **Zoom, Focus, A - B Repeat Button (ZOOM/FOCUS, A-B REPEAT)**
Zooms in/out, adjusts focus, or repeats playback recorded images between designated two points.
(Refer to page XX and XX respectively.)

⑬ **Iris, Listing Button (IRIS, LISTED)**
Adjusts iris, or enables/disables the filtering playback.
(Refer to page XX and XX respectively.)

⑭ **Preset, Auto Button (PRESET/AUTO)**
Moves a camera to the preset position, or activates auto pan operation.
(Refer to page XX and XX respectively.)

⑮ **Stop Button (STOP)**
Stops playback.

⑯ **Play/Pause Button (PLAY/PAUSE)**
Plays recorded images, or pauses playback.

⑰ **Record Button (REC/REC STOP)**
Starts recording. To stop recording, press this button down for 2 seconds or more.

⑱ **Slow Button (SLOW)**
Pans/tilts a selected camera slowly.

⑲ **Search Button (SEARCH)**
Displays the searching menu.

⑳ **Setup, Escape Button (SETUP/ESC)**
Displays the setup menu, or cancels operation on the setup menus, etc.

㉑ **Busy Indicator (BUSY)**
Lights when a selected camera is not available to operate because other user is operating using a controller or a PC via network. In this case, wait until this indicator goes off.

㉒ **Arrow Buttons (** A B C D **)**
Adjusts zooming/focus, or moves the cursor on the setup menus and the searching menu.

㉓ **Set Button (SET)**
Works differently depending on situations as below:
- Plays recorded images in the current playback speed when this button is pressed during fast playback.
- Registers preset positions of cameras.
- Activates the auto focus function.
- Sets the alarm suspension mode on/off.
- Determines setting parameters on the setup menus.

㉔ **Jog Dial**
Works differently depending on situations as follows:
- Plays recorded images frame by frame when this dial is rotated during pausing playback.
- Skips playback time when this dial is rotated during playback at normal speed.
- Moves the cursor on the searching menu or the thumbnail menu.
- Selects a setting parameter or a character on the setup menus.

㉕ **Shuttle Ring**
Works differently depending on situations as follows:
- Plays fast when this dial is rotated during playback at normal speed.
- Turns the searching menu pages or the thumbnail menu pages.

㉖ **Connectors Cover**

㉗ **Copy Port (COPY2)**
Connect a recommended DVD-RAM drive, CD-R drive or DVD-R drive with this port.

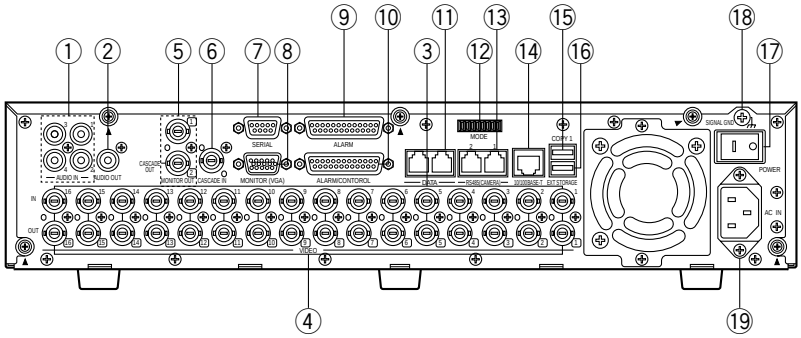
㉘ **S-Video Output Connector (S-VIDEO)**
Connect the S-video input connector of a VCR with this connector. The same video signal supplied to the MONITOR OUT2 connector on the rear panel will be supplied to this connector.

㉙ **Video Output Connector (VIDEO OUT)**
Connect the video input connector of a VCR with this connector. The same video signal supplied to the MONITOR OUT2 connector on the rear panel will be supplied to this connector.

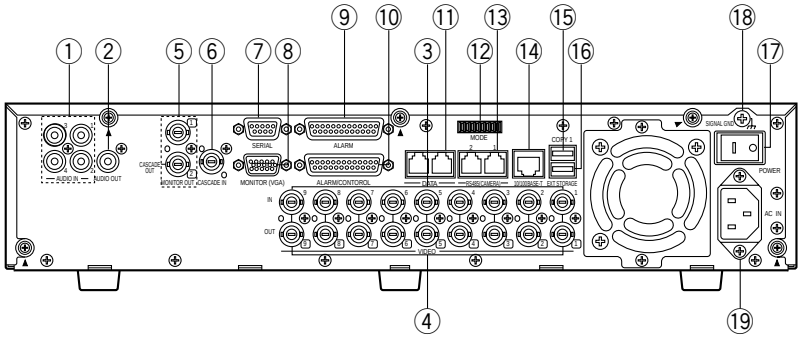
㉚ **Audio Output Connector (AUDIO OUT)**
This connector, for an RCA standard jack, supplies an unbalanced –10 dBV, 600 Ω line output audio signal to an external device.
Recorded audio will be supplied from this connector during playback.
The same audio signal supplied to the AUDIO OUT connector on the rear panel will be supplied to this connector.

■ Rear View

[WJ-HD316]



[WJ-HD309]



① **Audio Input Connectors (AUDIO IN 1 - 4)**
These connectors, for RCA pin jacks, accept an unbalanced –10 dBV, 10 kΩ line input audio signal supplied from an external device such as a microphone amplifier.

② **Audio Output Connector (AUDIO OUT)**
This connector, for an RCA standard jack, supplies an unbalanced –10 dBV, 600 Ω line output audio signal to an external device.
Recorded audio will be supplied from this connector during playback.

③ **Video Input Connectors (CAMERA IN 1 - 16 for WJ-HD316/CAMERA IN 1 - 9 for WJ-HD309)**
Connect system cameras or combination cameras to these BNC connectors.
A 75 Ω termination is made unless the video output terminal is connected.
To connect combination cameras, connect them to the CAMERA IN 1 - 8 connectors of the WJ-HD316, or the CAMERA IN 1 - 6 of the WJ-HD309 (accept connection with coaxial cables).

④ **Video Output Connectors (CAMERA OUT 1 - 16 for WJ-HD316/CAMERA OUT 1 - 9 for WJ-HD309)**
These BNC connectors supply video signals looped through the video input connectors.
Note: Video signals will not be supplied from the CAMERA OUT 1 - 6 connectors of the WJ-HD309 if the power of the WJ-HD309 is off.

⑤ **Monitor Output Connector (MONITOR OUT1, MONITOR OUT2/CASCADE OUT)**
Connect monitors to these BNC connectors.
The MONITOR OUT2 connector can also be used as the CASCADE OUT connector.
When using two or more units of WJ-HD316/WJ-HD309 and use the MONITOR OUT2 connector as the CASCADE OUT connector, connect with the CASCADE IN connector of another WJ-HD316/WJ-HD309.

⑥ **Cascade In Connector (CASCADE IN)**
Connect with the CASCADE OUT connector of another WJ-HD316/WJ-HD309 when using two or more units of WJ-HD316.

⑦ **Serial Connector (SERIAL)**
Connect a PC with this D-Sub 9-pin connector when controlling this unit.

⑧ **Monitor Connector (MONITOR (VGA))**
Connect a VGA monitor with this connector. The same video signal supplied to the MONITOR OUT2 connector will be supplied to this connector.

⑨ **Alarm Connector (ALARM)**
Connect an external device such as a sensor or a door switch with this D-SubD-Sub 25-pin connector.

⑩ **Alarm/Control Connector (ALARM/CONTROL)**
Connect a control switch with this D-Sub 25-pin connector when controlling this unit using an external device, or when controlling an alarm device such as a buzzer or a lamp.

⑪ **PS·Data Ports (DATA)**
Connect PS·Data compatible devices with these ports.

⑫ **Mode Switches (MODE)**
Set the operation mode of this unit with these dip switches.

⑬ **RS485 Ports (RS485 (CAMERA))**
Connect RS485 compatible combination cameras with these ports.

⑭ **Network Port (10/100BASE-T)**
Connect this unit to a network compatible with 10BASE-T or 100BASE-Tx when controlling this unit using a PC via network.

⑮ **Copy Port (COPY1)**
Connect a recommended DVD-RAM drive, CD-R drive or DVD-R drive with this port.

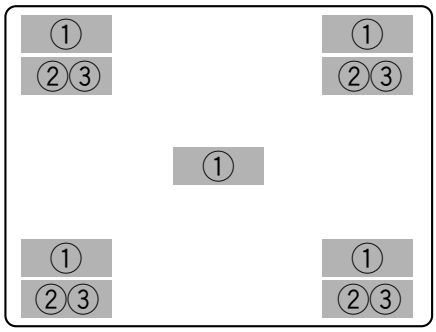
⑯ **Extra Storage Port (EXT STORAGE)**
Connect an optional extension unit (WJ-HDE300) with this port.

⑰ **Power Switch (POWER)**
Turns the power of this unit on and off.

⑱ **Signal Ground Terminal (SIGNAL GND)**

⑲ **Power Cord Inlet (AC IN)**
Connect the power cord to this inlet.

■ On the Monitor 1 (To display only live image)



1. Camera Title
Displays the edited camera title.
A position to display a camera title can be selected from the following.
Upper left, upper right, lower left, lower right, center
The default camera title position is lower right (R-LOWER).

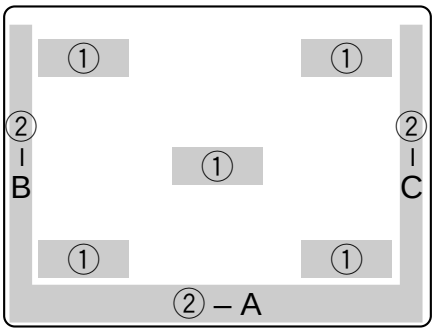
2. Time
Displays the current time (hour:minute:second) and date (year:month:day).
A position to display the time can be selected from the following.
Center, upper left, lower left, upper right, lower right
The default time display position is lower left (L-LOWER).
Note: When the camera title and the time display are layered in a multi-screen display, only the time display will be displayed.

3. Alarm Display
When an alarm occurred, an alarm display will be displayed.
The alarm display will be displayed differently as follows depending on which alarm has occurred.
VMD-*: When motion is detected.
LOSS-*: When video loss occurred.
COM-#: When a command alarm occurred.
TRM-#: When a terminal alarm occurred.

*: Camera number (1 - 16 for WJ-HD316, 1 - 9 for WJ-HD309)
#: Event number

Note: Refer to page XX for further information about event types and event actions.

■ On the Monitor 2 (To display live or recorded image)



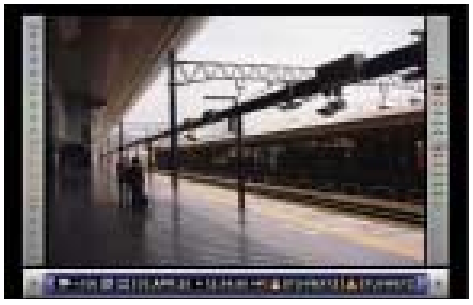
Note: The same image will be displayed on the monitor 2 and the VGA monitor.

Important
Since VGA output from this unit is the same as for televisions (720 H x 480 V pixels/vertical frequency of 59.94 Hz), it may be possible that both the left and right edges can not be fit in the screen depending on a VGA monitor.

1. **Camera Title**
   Displays the edited camera title.
   A position to display a camera title can be selected from the following.
   Upper left, upper right, lower left, lower right, center
   The default camera title position is lower right (R-LOWER).

2. **Task Bar**
   Displays the current statuses.
   The task bar consists of the main bar (② - A), the left bar (② - B), and the right bar (② - C).
   There are 3 different ways to display the task bar as follows.

   Style1
   Displays only the main bar and the statuses is displayed on it.

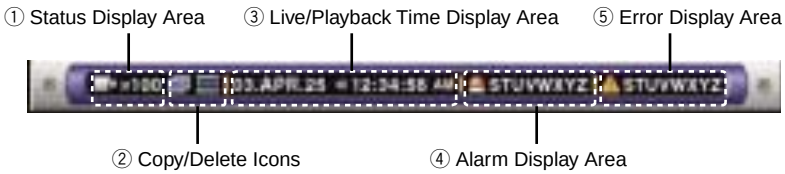


Style2
Displays the statuses on all of the main bar, the left bar and the right bar.

Style3
Displays the statuses only on the main bar, and not display information on the left bar and the right bar.
Note: Style2 and Style3 are graphic images. They may be displayed not so clear as style1.

● Statuses on the Task Bar

• On the Main Bar



① Status Display Area

Indicated Item	Status	Indication
Live	Indicates live image display status	: Live image is displayed SEQ: Live images are displayed sequentially
Playback	Indicates that playback is being performed currently with displayed playback speed	►: Playing currently ◄: Playing reversely currently ❚❚: Pausing currently ►► ×100: Playing at fast speed currently ◄◄ ×100: Playing reversely at fast speed currently
Recording	Indicates that recording is being performed currently	REC: Recording currently
Search	Indicates that searching is being performed currently	SEARCH: Searching currently

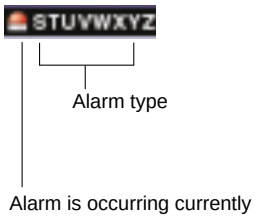
② Copy/Delete Icons

Indicated Item	Status	Indication
Copy	Indicates that data copy is being performed currently	: Copying currently
Delete	Indicates that data deletion is being peformed currently	: Deleting data currently

③ Live/Playback Time Display Area

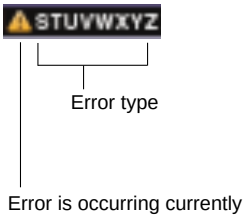
Indicated Item	Status	Indication
Time	Displays time of the displayed image When displaying live image: Current time When playing recorded image: Time when recorded *: During the summer time, an asterisk (*) will be displayed on the left side of the displayed time.	03.APR.25 ✳12:34:56 AM Year:Month:Day Hour:Minute:Second

④ Alarm Display Area

Indicated Item	Status	Indication
Alarm	Indicates that an alarm has occurred **VMD-*:** When motion is detected **LOSS-*:** When video loss occurred **COM-*:** When a command alarm occurred **TRM-*:** When a terminal alarm occurred *: Camera number (1 - 16 for WJ-HD316, 1 - 9 for WJ-HD309) #: Alarm number	

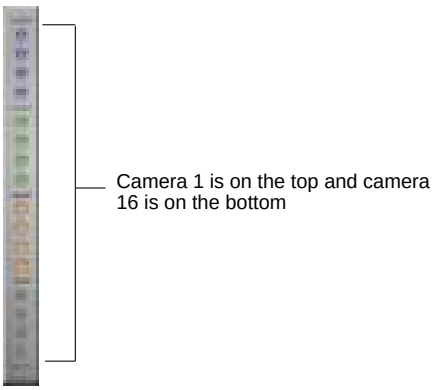
Note: Refer to page XX for further information about alarm types and alarm operations.

⑤ Error Display Area

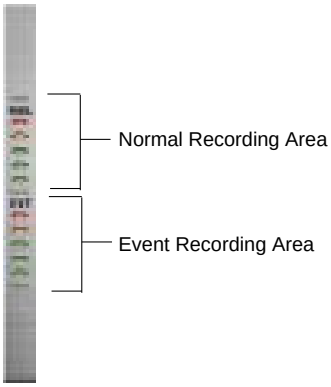
Indicated Item	Status	Indication
Error Warning	Indicates an error occurrence or warning **ALT-*:** Alteration is detected **R-ERROR:** Failed to read data from the HDD **W-ERROR:** Failed to write data on the HDD **SMART:** Warning of the HDD malfunction **H-METER:** Set time for hour-meter (active time of the HDD) warning has passed **THERMAL:** The temperature inside the unit is too high **POWER:**The power outage is detected **#-nn%:** Warning about running out of disk space with displaying available disk space percentage **#-FULL:** No available disk space **MEDIUM-n:** An error occurred in an external recording device **REMOVE:** The hard disk is removed from the system automatically because of an access error **FAN:** The fan is faulty *: Camera number (1 - 16 for WJ-HD316, 1 - 9 for WJ-HD309) #: Abbreviation that indicates partition nn: Available disk size n: Number of connector an external recording device is connected	 **Abbreviation of partition** Status — Displayed abbreviation Normal recording area — NML Event recording area — EVT Copy area — CPY External recording device connected to the COPY1 port on the rear panel — CP1 External recording device connected to the COPY2 port on the front panel — CP2

Note: Refer to page XX for further information about error types and what to do when error occurred.

• On the Left Bar

Indicated Item	Status	Indication
Camera	Indicates recording and displaying status **Gray:** Camera currently not displayed or not connected to a respective channel **Green:** Camera displayed on the monitor **Orange:** Camera currently being recorded **Blue:** Camera currently being recorded and displayed on the monitor	

• On the Right Bar

Indicated Item	Status	Indication
Used disk space	Indicates that available disk space of each partition. **Top:** 100% of the disk space is used (no available disk space) **Second from the top:** 80% of the disk space is used **Center:** 60% of the disk space is used **Second from the bottom:** 40% of the disk space is used **Bottom:** 20% of the disk space is used **Note:** When "CONTINUE" is selected on the "Termination" page of the "Maintenance" setup menu, available disk space will not be displayed. Refer to a system administrator for further information. **NML:** Available disk space of normal recording area used for manual recording and scheduled recording **EVT:** Available disk space of event recording area used for event recording and emergency recording	

z Insert the power plug to an outlet (AC 120 V, 60 Hz)

Note: Make sure the power source is AC 120 V, 60 Hz.

x Turn the power switch on the rear panel on.

The OPERATE indicator will light and the system check (checking the system and hard disk) will start.
The startup splash image below will be displayed on the monitor 2 and the VGA monitor during the system check.

When the auto login is off, the login window will be displayed if any button on the front panel of this unit is pressed after the system check. (Go to step 3)
When the auto login is on, live image will be displayed after the system check.

Notes:

- If the hard disk configuration had been changed after the last startup or the hard disk has problems, the disk configuration menu page will be displayed automatically after the startup splash. (Refer to page XX for further information.)
- It is possible to display the disk configuration menu by pressing the SET button when the image below that says the system check has been completed is displayed.

Important
When using the optional extension unit (WJ-HDE300), turn the power of this unit after turning on the power of all extension units.

c Enter a user name and password.

Rotate the jog dial to select a character to be entered in the cursor position.
It is also possible to enter numbers by pressing the camera selection buttons ([1] - [10/0] for WJ-HD316, [1] - [9], [0] for WJ-HD309).
To move the cursor, press the arrow buttons.

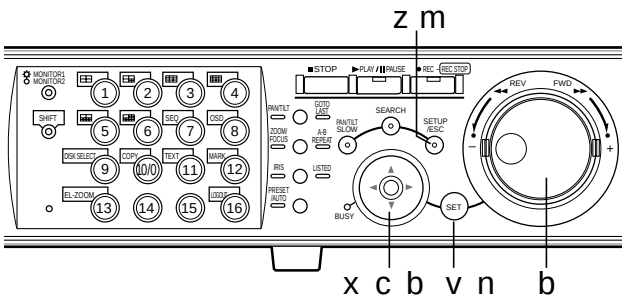
It is the same way to enter characters as the way to edit characters attached to images. Refer to page XX for further information.

v Display live image.

Press the SET button to display live image.
If the authentication window is displayed, enter user name and password.
When authenticated, live image will be displayed.
When not authenticated, the authentication window will be displayed again.

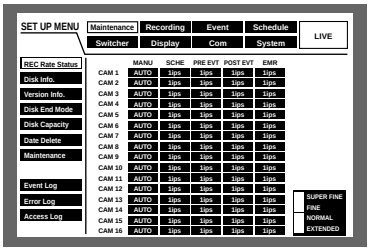
CLOCK ADJUSTMENT

It is recommended to check the clock periodically and put the clock right if it shows the wrong time.
Adjust the clock when displaying live image.

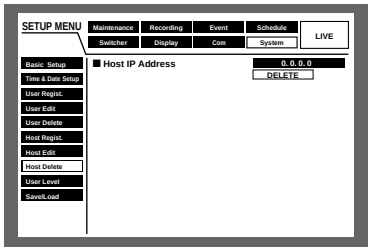


z Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will be displayed on the monitor 2 and the VGA monitor.

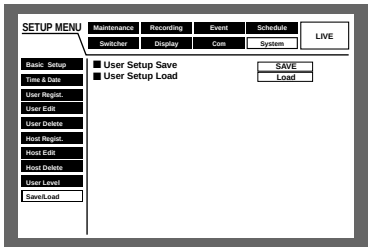


x Move the cursor to "System" using the arrows button (D C A B) and press the SET button.



c Move the cursor to "Time & Date" using the arrows button (C D).

The "Time & Date" menu will be displayed.



v Press the SET button.

b Move the cursor to "Time Format" using the arrows button and set the time (Month, Day, Year, Time) using the jog dial.

n Move the cursor to "SET" and press the SET button.

The selected date format and the set time will be applied.

m Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will disappear and live image will be displayed.

SHUTDOWN

To shutdown the unit, do the followings.

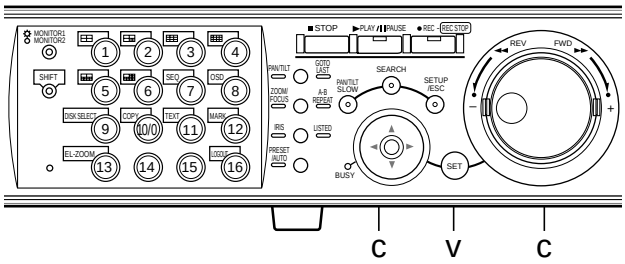
1. In case recording is being performed, press the REC button for 2 or more seconds. Recording will stop and the indicator on the REC button will go off.
2. In case playback is being performed, press the STOP button. Playback will stop and the indicator on the PLAY/PAUSE button will go off.
3. Turn the power of the unit off using the POWER switch on the rear panel. The OPERATE indicator will go off.

Important

- Detach the plug from the outlet if not operating the unit for a length of time.
- In case the unit has not been operated for a certain period, turn on the power of the unit between whiles to prevent interference with functions.

RECORDING (Manual Recording)

Do the followings to recordmanually.
Refer to a system administrator about the required settings for manual recording.



z Start recording.

Press the REC button to start recording.
The indicator on the button will light and recording will start.
Images from all the connected cameras will be recorded with the default setting.
It is possible to record only images displayed on the monitor 2 and the VGA monitor by changing the setting.

When recording with higher priority than manual recording is performed, manual recording will not be performed until this recording finishes.
Refer to the following about the recording mode.

x Stop recording.

Press the REC button down for around 2 seconds.
The indicator on the button will go off and recording will stop.

Notes:

- A camera selection button will light orange (currently being recording) or blue (currently being recorded and displayed on the monitor) to indicate which camera is being recorded.
- When recording with other recording mode is being performed, the indicator on the REC button will not go off even though the REC button is pressed to stop manual recording.

● Recording Mode and Priority

There are 4 recording modes as follows.

Recording Mode	Description	Priority*1
Emergency Recording	Start recording manually using an external switch at an emergency event occurrence	1
Event Recording	Recording will be performed automatically at an event occurrence	2*2
Manual Recording	Start and stop recording manually	3*2
Scheduled Recording	Recording will be performed with a designated start/stop time and date automatically	4*2

*1: Priorities on the above table are the default settings. (Emergency recording is the highest priority.)
*2: Priorities for manual recording, scheduled recording and event recording can be changed. Refer to a system administrator about the settings.

● Recording Time

Approximate possible recording durations will be as follows (with built-in HDD, manual recording):

Recording with audio

Unit: Hour

Recording Rate	EXA (For Long Time Recording)	NQA (Standard)	FQA (High Quality)	SFA (Highest Quality)
2	2 040	1 730	1 320	1 070
3	2 040	1 730	1 320	1 070
5	680	570	440	1 070
6	1 270	950	630	470
7.5	680	570	440	350
10	510	430	330	260
15	400	340	260	210
30	200	170	130	100
60	60	50	40	30

Recording without audio

Unit: Hour

Recording Rate	EXA (For Long Time Recording)	NQA (Standard)	FQA (High Quality)	SFA (Highest Quality)
2	3 810	2 860	1 900	1 430
3	3 810	2 860	1 900	1 430
5	1 270	950	630	470
6	1 270	950	630	470
7.5	950	710	470	350
10	760	570	380	280
15	760	570	380	280
30	380	280	190	140
60	120	90	60	40

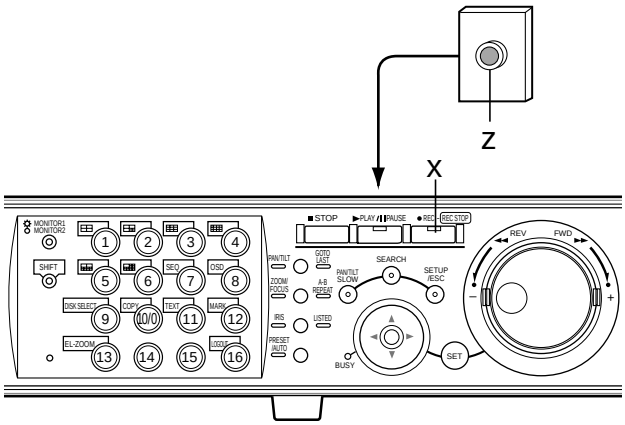
Important

The possible recording durations on the above tables are approximate durations under the conditions below. Refer to a system administrator for further information.

- Recording on the built-in hard disk (160 GB x 2)
- Recording all camera channels by manual recording
- "AUTO" is selected for the recording rate

RECORDING (Emergency Recording)

Record manually using an external switch at an emergency event occurrence.
For example, install an external switch at the reception counter, and start recording using it when a suspicious individual appears.
Refer to a system administrator about the required settings for emergency recording.



z Press the external switch.

The indicator on the REC button will light and recording will start.
With the default setting, recording will be performed for 10 seconds.

Emergency recording is the highest priority. Emergency recording will be performed even when this unit is recording in other recording mode.

x Stop recording.

When recording duration set in advance had passed, recording will stop automatically.
With the default setting, recording will be stop automatically after recording for 10 seconds.

When "CONTINUE" is selected for "Recording Time" of "Emergency REC" on the SETUP MENU (Recording), press the ALARM RESET button to stop recording.
The indicator on the REC button will go off and recording will stop.

Important

- A camera selection button will light orange (currently being recording) or blue (currently being recorded and displayed on the monitor) to indicate which camera is being recorded.
- When starting emergency recording during other recording with different recording mode is being performed, the indicator on the REC button will keep on being lit and other recording will be resumed after the emergency recording finished.

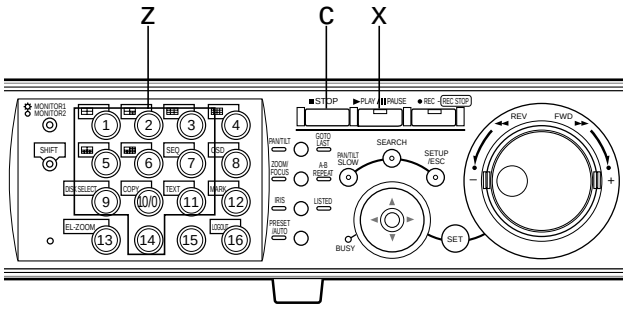
● Recording duration of emergency recording

Recording duration of emergency recording can be set as follows. Refer to a system administrator for further information.

Parameter	Recording Duration
1 s - 10 s	Record for the selected time (1 - 10 seconds , can be set in 1 second step)
20 s	Record for 20 seconds
30 s	Record for 30 seconds
1 m - 10 m	Record for the selected time (1 -10 minutes can be set in 1 minute step)
20 m - 60 m	Record for the selected time (20 - 60 minutes, can be set in 10 minutes step)
MANUAL	Record only while the external switch is being pressed down
CONTINUE	Record until the ALARM RESET button is pressed

PLAYBACK

It is possible to play recorded image without stopping recording.
Playback image will be displayed on the monitor 2 and the VGA monitor.



z Select a camera respective to recorded images to be played. (Go to step 2 if not necessary)

Press a desired camera selection button.
The pressed camera selection button will light green and respective live image will be displayed.

x Start playback.

Press the PLAY/PAUSE button.
The indicator on the PLAY/PAUSE button will light and recorded image of the selected camera will be played.

First playback after login: The latest recorded image will be played.
With the default setting, playback will start 5 seconds before the start time of the latest recorded image. Start time can be selected from the following:
5 s before/10 s before/30 s before/1 m before/5 m before

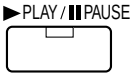
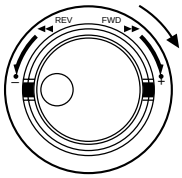
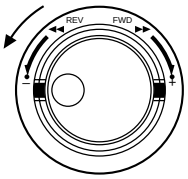
Refer to a system administrator about the settings.

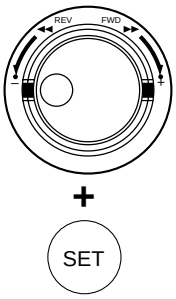
Other than those above: Playback will start from the end point of the recorded image played last time.

c Stop playback.

Press the STOP button.
The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live image will be displayed on the monitor 2 and the VGA monitor.

● Available functions during playback

Pause		Pressing the PLAY/PAUSE button to pause playback. While pausing, the indicator on the PLAY/PAUSE button will blink. Pressing this button again will resume playback.
Single frame skip		Rotating the jog dial during pause will skip to the next or previous frame. Rotating the jog dial clockwise will skip to the next frame and rotating it counterclockwise will skip to the previous frame.
Fast forward/Fast reverse		Rotating the shuttle ring will change the playback speed (1/2x, 1x, 2x, 5x, 10x, 20x) according to rotated degree. When the shuttle ring is held in the 20x position (rotated to the end) for 10 seconds, the playback speed will be 50x. When the shuttle ring is held 5 more seconds after the playback speed became 50x, the playback speed will be 100x. Rotating the shuttle ring clockwise will play at fast speed and rotating it counterclockwise will play reversely at fast speed. To play at normal speed, release the shuttle ring.

Hold playback speed		Press the SET button while holding the rotated shuttle ring to hold a desired playback speed. (Playback speed will be held even though the shuttle ring is released.) To return to the normal playback speed, press the SET button.
Skip		Rotating the jog dial during playback will skip to the next or previous recorded image. Rotating the jog dial clockwise will skip to the next recorded image and rotating it counterclockwise will skip to the previous one. If there is no next or previous recorded image, current playback will be continued.
Play the latest recorded image		Press the GO TO LAST button to play the latest recorded image.
Multi-screen display		It is possible to display recorded images in multi-screen (4/7/9/10/13/16 for WJ-HD316, 4/7/9 for WJ-HD306). ① Press the SHIFT button. The SHIFT indicator will light. ② Press a camera selection button (1 - 6 for WJ-HD316, 1 - 3 for WJ-HD306) to select a desired multi-screen. Camera selection button 1: 4 split screen Camera selection button 2: 7 split screen Camera selection button 3: 9 split screen Camera selection button 4: 16 split screen (Only for WJ-HD316) Camera selection button 5: 10 split screen (Only for WJ-HD316) Camera selection button 6: 13 split screen (Only for WJ-HD316) ③ To display recorded image on a single screen, press the SHIFT button again. After the SHIFT indicator went off, press a camera selection button.
Marking		It is possible to play from a marked point. Do the followings to mark a desired point. 1. Press the SHIFT button. The SHIFT indicator will light. 2. Press the camera selection button 12 (9 for WJ-HD309) (MARK) at a desired point to be marked during playback. Up to 100 points can be marked. When marked while displaying multi-screen, same number of split screen will be counted as marked point. (When a point is marked while displaying 16 split screen, 16 points will be marked simultaneously.)
Text display		It is possible to display text information attached to recorded image while playback. Text display is available only when playing on a single screen. ① Pause playback. ② Press the SHIFT button. The SHIFT indicator will light. ③ Press the camera selection button 11 (5 for WJ-HD309) (TEXT).

A - B repeat playback

It is possible to play recorded images between two designated points repeatedly.

① Designate a start point (A) by pressing the A - B REPEAT button during playback.
The A - B REPEAT indicator will start blinking, and the time of point A will be displayed.

To cancel the designated point, press the SETUP/ESC button.

② Designate an end point (B) by pressing the A - B REPEAT button during playback.
Playback between point A and B will start and keep on playing repeatedly.
The time of point A and B will be displayed during playback.

③ Press the A - B REPEAT button during A - B repeat playback to return to normal playback.

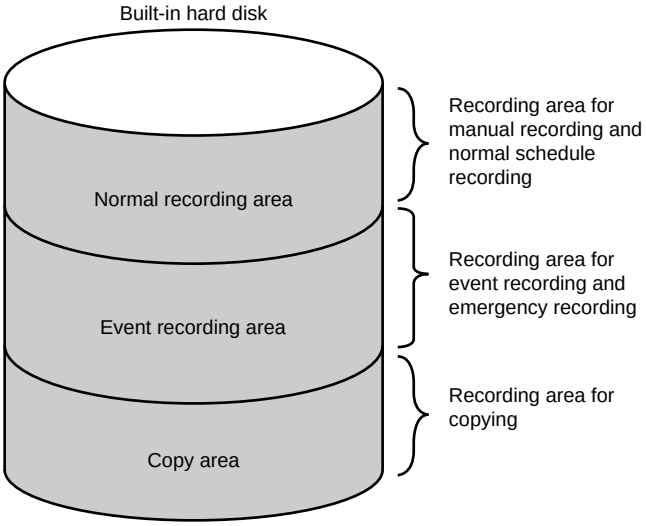
Playback Image on a Designated Disk

Images from a camera will be recorded on the built-in hard disk or external recording devices (DVD-RAM drive, DVD-R drive or CD-R drive) connected with this unit.
Available disk space or disks are as follows.

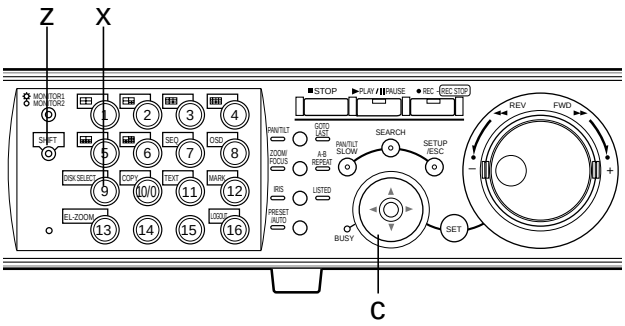
Note: External recording devices can be used as copy area of images recorded on the hard disk. It is impossible to record images on the external recording devices directly.

HDD Normal Recording Area/Event Recording Area:
Disk space for recording on the built-in hard disk
Recorded image by manual recording (refer to page XX) or event recording (refer to page XX) will be stored in this area.

HDD Copy Area: Disk space for recording on the built-in hard disk
Recorded images willbe copied in this area (refer to page XX).


Built-in hard disk
Normal recording area
Event recording area
Copy area
Recording area for manual recording and normal schedule recording
Recording area for event recording and emergency recording
Recording area for copying

Notes:
- Playback image will be displayed only on the monitor 2 and the VGA monitor.
- Playback can be performed during recording.
- Disk space size of each recording area differs depending on the settings.
  Refer to a system administrator for further information.



z Press the SHIFT button.

The SHIFT indicator will light.

x Press the camera selection button 9 (7 for WJ-HD309) (DISK SELECT).

The DISK SELECTION window will be displayed on the monitor 2 and the VGA monitor.

c Move the cursor to select a disk to be played using the arrow buttons and rotate the jog dial to check the radio button next to the selected disk. Press the SET button to determine the selection.

The COPY DATA window will be displayed when "HDD Copy Area" is selected.
The RECORDING EVENT LIST window will be displayed when "HDD Normal/Event Recording Area" is selected. (Refer to page XX for further information.)
To close the DISK SELECTION window, move the cursor to select "CANCEL" and press the SET button.

v Rotate the jog dial to select a desired recorded image to be played, and press the SET button to determine the selection.

b **Press the PLAY/PAUSE button to play the selected recorded image. The indicator on the PLAY/PAUSE button will light and the playback will start.**

n **To stop playback, press the STOP button. The indicator on the PLAY/PAUSE button will go off and the playback will stop.**

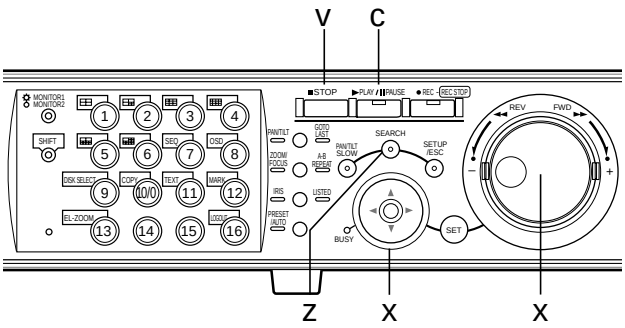
Live image will be displayed on the monitor 2 and the VGA monitor.

Notes:

- When "HDD Normal Recording Area/Event Recording Area" is selected, pressing the PLAY/PAUSE button after stopping playback will start playback from the end point of the recorded image played last time.
- When "HDD Copy Area" is selected, pressing the PLAY/PAUSE button after stopping playback will start playback the latest image copied on the selected disk.

Playback From a Designated Time and Date

It is possible to play recorded image from a designated time and date without stopping recording.
Playback image will be displayed on the monitor 2 and the VGA monitor.



z Press the SEARCH button repeatedly until the time and date designation window is displayed.

The time and date designation window will be displayed on the monitor 2 and the VGA monitor.

x Enter the start time using the jog dial and the arrows button.

Select time and date using the jog dial. To move the cursor, use the arrows button (A B).

c Press the PLAY/PAUSE button.

The indicator on the PLAY/PAUSE button will light and start playback from the entered time and date.

If there is no recorded image of the entered time:
When there are images recorded after the entered time, the oldest recorded image after the entered time will be played.
When there is no image recorded after the entered time, the newest recorded image before the entered time will be played.

v Press the STOP button.

The indicator on the PLAY/PAUSE button will go off and stop playback.
Live image will be displayed on the monitor 2 and the VGA monitor.

SEARCH AND PLAY

There are 3 ways to search recorded image and play it.

- Search a recording event and play it (Recording event search)
- Search a motion detected time and date from recorded images and play it (VMD search)
- Search marked point and play it (Marking search)

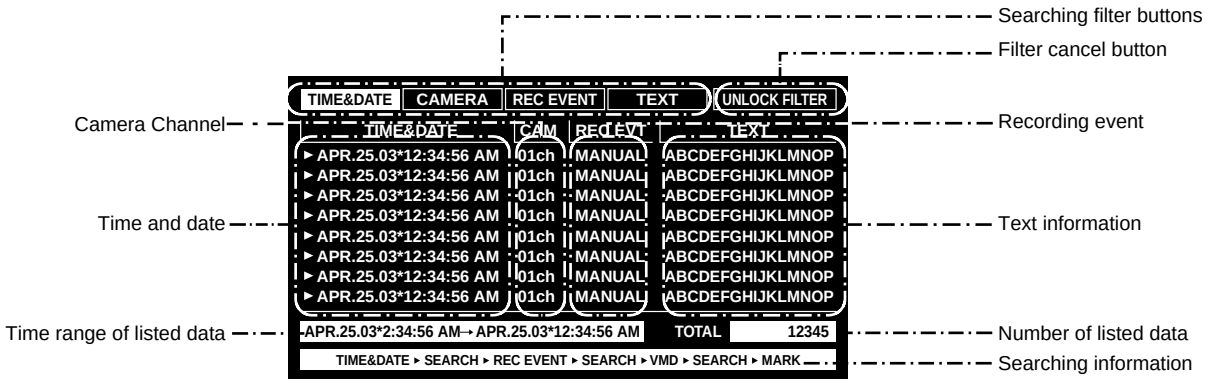
Note: Playback image will be displayed on a single screen on the monitor 2 and the VGA monitor. To play in a multi-screen, switch to a multi-screen after starting playback.

■ Searching Recording Event and Playback (Recording Event Search)

Display a list or a thumbnail of recording events, and select a desired recording event among them to play it.
It is possible to search using the following filters:

Searching Filters	
TIME & DATE	Search only images recorded in the entered time range.
CAMERA	Search only recorded images from the selected camera channel.
REC EVENT	Search only images recorded in the selected recording mode. It is possible to search images recorded in the following recording mode: EMERGENCY: Emergency recording (Refer to page XX.) VMD: Event recording performed when motion had been detected (Refer to page XX.) TERMINAL: Event recording performed when terminal alarm had been detected. COMMAND: Event recording performed when command alarm had been detected. VIDEO LOSS: Event recording performed when video loss had occurred. MANUAL: Manual recording (Refer to page XX.) SCHEDULE: Scheduled recording (Refer to page XX.)
TEXT	Search only images recorded with text information

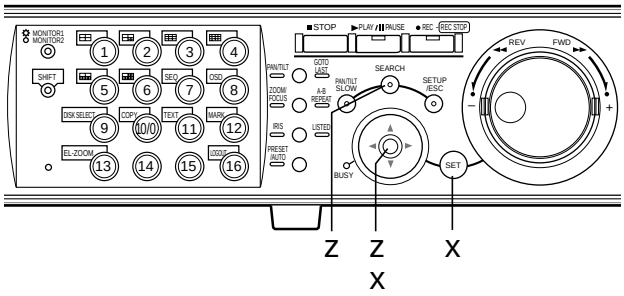
● Recording Event List Window



Searching filter buttons: Selects the searching filter
Filter cancel button: Cancels the selected searching filter and lists all recording events
Time and date: <When searched by recording event>
Time when recording started will be displayed.
<When searched by VMD>
Time when motion had been detected will be displayed.
<When searched by marked point>
Time when the point is marked will be displayed.
Camera channel: Camera channel of the recorded image will be displayed. The recorded image of the displayed camera channel will be played on a single screen.
Recording event: Recording mode will be displayed.
Text information: First several characters of text information will be displayed if the image has text information.
Time range of the listed data: Time range of the listed data will be displayed.
Number of the listed data: Number of the listed data will be displayed.
Searching information: Searching filter will be displayed. (A filter of currently displayed list will be displayed in orange.)

● Recording Event Thumbnail Window

Time and date: <When searched by recording event>
Time when recording started will be displayed.
<When searched by VMD>
Time when motion had been detected will be displayed.
<When searched by marked point>
Time when the point is marked will be displayed.
Camera channel/Recording event: Camera channel of the recorded image will be displayed. The recorded image of the displayed camera channel will be played on a single screen. Recording mode also will be displayed.
Number of the listed data: Number of the listed data will be displayed.



z Press the SEARCH button repeatedly until the recording event list window is displayed.

TIME&DATE	CAMERA	REC EVENT	TEXT	UNLOCK FILTER

TIME&DATE	CAM	REC EVT	TEXT
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP

APR.25.03*2:34:56 AM→ APR.25.03*12:34:56 AM TOTAL 12345

TIME&DATE ▸ SEARCH ▸ REC EVENT ▸ SEARCH ▸ VMD ▸ SEARCH ▸ MARK

The recording event list window will be displayed on the monitor 2 and the VGA monitor.
Use the arrows button (D C) to switch displaying the list window and the thumbnail window alternately.
To search using a searching filter, go to step 4.

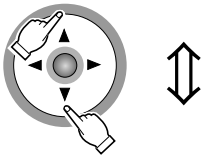
TIME&DATE	CAMERA	REC EVENT	TEXT	UNLOCK FILTER

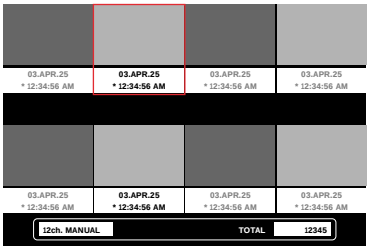
TIME&DATE	CAM	REC EVT	TEXT
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP

APR.25.03*2:34:56 AM→ APR.25.03*12:34:56 AM TOTAL 12345

TIME&DATE ▸ SEARCH ▸ REC EVENT ▸ SEARCH ▸ VMD ▸ SEARCH ▸ MARK

<List window>





<Thumbnail window>

x Use the arrows button (A B) to select a searching filter (TIME & DATE, CAMERA, EVENT, TEXT), and press the SET button.

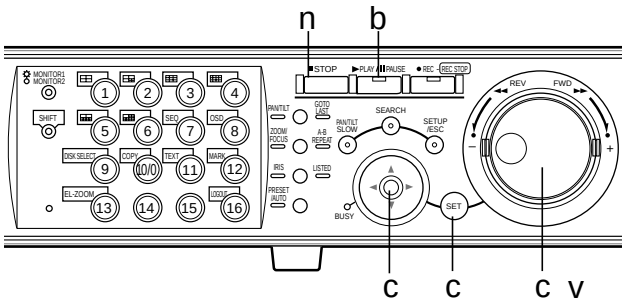
TIME&DATE	CAMERA	REC EVENT	TEXT	UNLOCK FILTER

TIME&DATE	CAM	REC EVT	TEXT
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP
► APR.25.03*12:34:56 AM	01ch	MANUAL	ABCDEFGHIJKLMNOP

APR.25.03*2:34:56 AM→ APR.25.03*12:34:56 AM TOTAL 12345

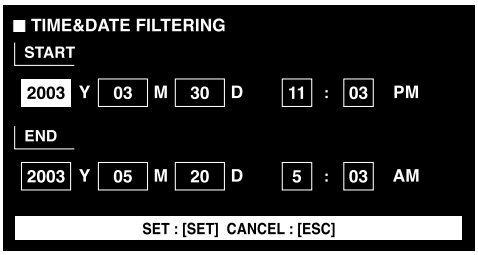
TIME&DATE ▸ SEARCH ▸ REC EVENT ▸ SEARCH ▸ VMD ▸ SEARCH ▸ MARK

When a searching filter is selected, the respective searching filter window will be displayed.
Select "UNLOCK FILTER" and press the SET button to cancel the selected filter.
Refer to page XX about the searching filters.



c Filter recording events.

Filter recording events by time and date

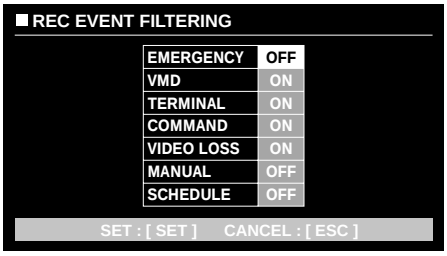


Move the cursor using the arrows button and rotate the jog dial to enter time and date.
Press the SET button to determine the entered time and date.
The recording event in the entered time range will be listed and displayed.

Filter recording events by camera channel

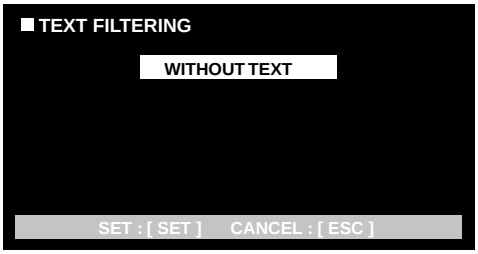
Select camera channel numbers (1 - 16 for WJ-HD316, 1 - 9 for WJ-HD309) by pressing the camera selection buttons to apply filtering.
The selected camera channels will be highlighted (white).
Press the SET button to determine the selection of camera channel numbers.
The recording event of the selected camera channels will be listed.

Filter recording events by recording event



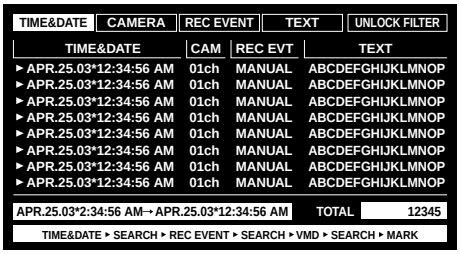
Move the cursor to select the recording event (refer to page xx) using the arrows button (D C) and rotate the jog dial to ON.
Press the SET button to determine the selection.
The recording event of the selected filter will be listed.

Filter recording events by text information



Rotate the jog dial to select OFF, WITH TEXT or WITHOUT TEXT.
Press the SET button to determine the selection.
The recording event filtered by the selected filter will be listed.

v Rotate the jog dial to select a recording event to be played.



b Press the PLAY/PAUSE button.

The LISTED indicator and the indicator on the PLAY/PAUSE button will light and playback of the selected recording event will start.

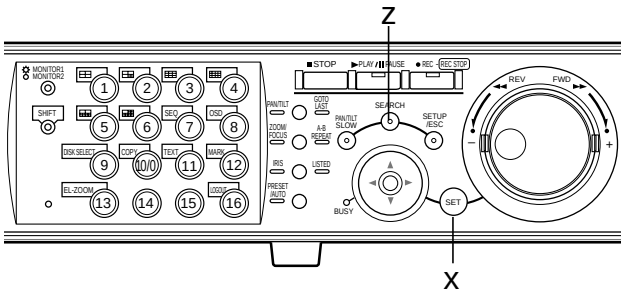
Note: When the LISTED indicator is lit, only listed recording events are available to be played. Press the LISTED button during playback to make all recording events available to be played.

n To stop playback, press the STOP button.

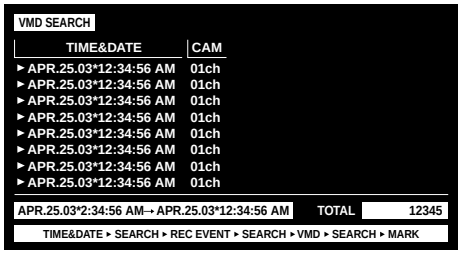
The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live image will be displayed on the monitor 2 and the VGA monitor.

■ Searching a motion detected time and date from recorded images and play it (VMD search)

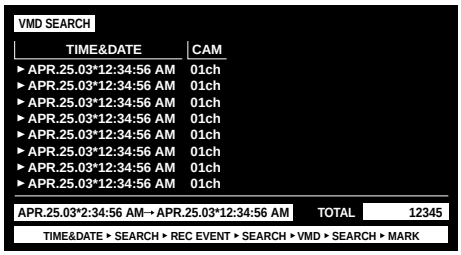
Search a motion detected time and date from all images recorded in all the recording modes, and display a list or a thumbnail of the results.
Select a time and date displayed on the result list or thumbnail to play it.
It is possible to filter by camera channel, time and date, detection area or searching mode, to list time and date of events that recorded when motion had been detected.



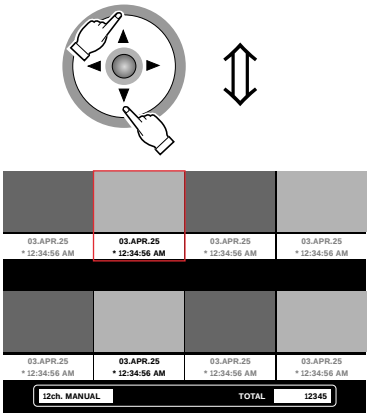
z Press the SEARCH button repeatedly until the VMD search list is displayed.



The result list of the VMD search will be displayed on the monitor 2 and the VGA monitor.
(The list in the displayed window is the results of the previous search.)
Use the arrows button (D C) to switch displaying the list window and the thumbnail window alternately.

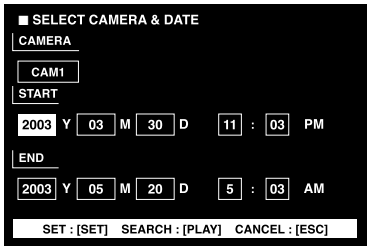


<List window>

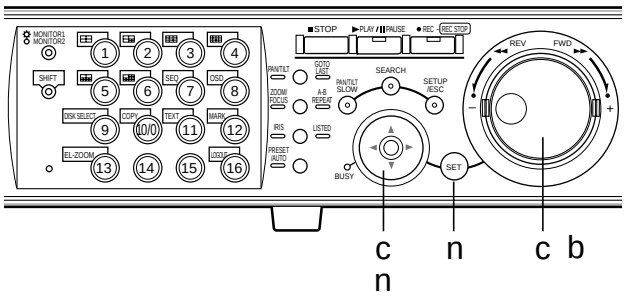


<Thumbnail window>

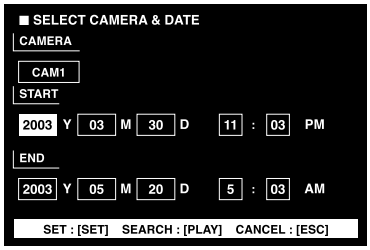
x Press the SET button.



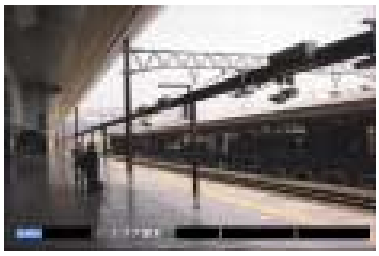
The VMD search window will be displayed.
Enter a camera channel number and time range on the VMD search window for the VMD search.
To search by the same conditions as the previous search, press the PLAY/PAUSE button.
Go to the step 12 when the VMD search is performed and a list of the results is displayed after the PLAY/PAUSE button is pressed.



c **Move the cursor using the arrows button and rotate the jog dial to enter a camera channel number and time range for the VMD search.**

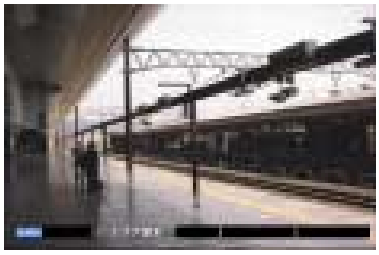


v **Press the SET button.**



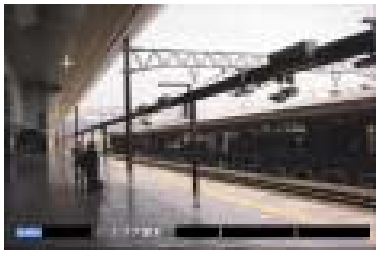
The motion detection area setup window will be displayed.
To search by the same conditions as the previous search, press the PLAY/PAUSE button.
Go to the step 12 when the VMD search is performed and a list of the results is displayed after the PLAY/PAUSE button is pressed.

b **Rotate the jog dial to select "SETUP AREA " on the status bar.**

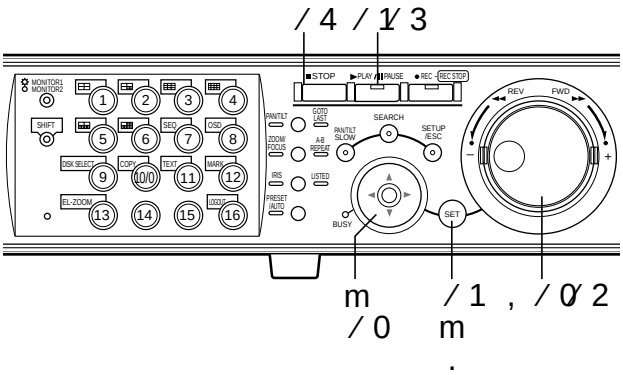


Note: It is possible to set all displayed area as motion detection area by pressing the SET button after selecting "ALL AREA".

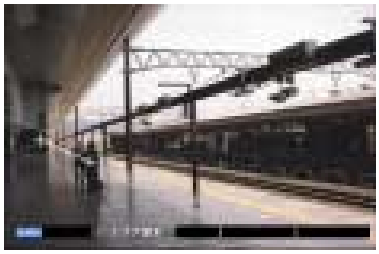
n **Move the cross cursor using the arrows button to a point to be determined as the start point of motion detection area.**



Press the SET button to determine the selected point as the start point of the motion detection area.



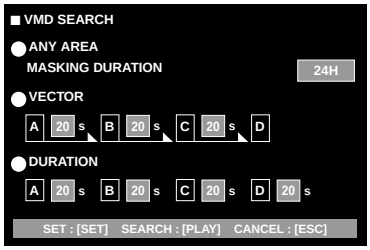
m **Move the cross cursor using the arrows button to a point to be determined as the end point of the motion detection area.**



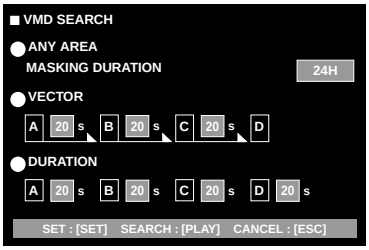
Press the SET button to determine the selected point as the end point of the motion detection area.
It is possible to set up to 4 motion detection areas by repeating step 6 and 7.

, Rotate the jog dial to select "EXIT" on the status bar to exit from the motion detection area setup window.

. Press the SET button to display the VMD search window. Refer to page xx for further information about each of the detection mode.


VMD SEARCH
ANY AREA
MASKING DURATION
24H
VECTOR
A 20 s B 20 s C 20 s D
DURATION
A 20 s B 20 s C 20 s D 20 s
SET : [SET] SEARCH : [PLAY] CANCEL : [ESC]

/ 0 Move the cursor to select a detection mode using the arrow buttons and rotate the jog dial to check the radio button next to the selected detection mode. Press the SET button to determine the selection.


VMD SEARCH
ANY AREA
MASKING DURATION
24H
VECTOR
A 20 s B 20 s C 20 s D
DURATION
A 20 s B 20 s C 20 s D 20 s
SET : [SET] SEARCH : [PLAY] CANCEL : [ESC]

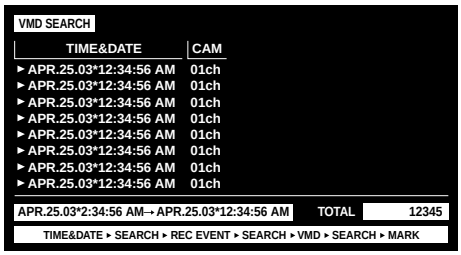
Refer to page XX for further information about each of the detection mode.

<ANY AREA mode>
Move the cursor to the parameter box using the arrows button [B] to select a masking duration from the following.
1S/1M/1H/24H

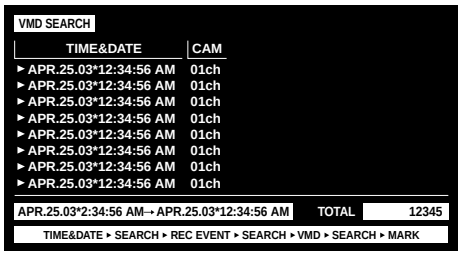
<VECTOR mode>
Move the cursor to an area for the settings of VECTOR using the arrows button [B] and rotate the jog dial to select an area. Move the cursor to the parameter box of the selected area using the arrows button [B] to select an interval time for an object moving between each area from the following.
--/5 s/10 s/20 s/30 s/40 s/50 s/1 m

<DURATION>
Move the cursor to a parameter box of each area using the arrows button [B] and rotate the jog dial to select a moving duration for an object in each area from the following.
--/5 s/10 s/20 s/30 s/40 s/50 s/1 m
Refer to page 28 for further information about the detection modes.

/ 1 Press the SET button or the PLAY/PAUSE button to start searching and display the result of the VMD search.



/ 2 Rotate the jog dial to select a result to be displayed.



/ 3 Press the PLAY/PAUSE button to start playback.

The LISTED indicator and the indicator on the PLAY/PAUSE button will light and playback of the selected recording will start.

Note: It is possible to skip the playback point to the listed time (motion detected time) by rotating the jog dial when the LISTED indicator is lit.
To return to the normal playback, press the LISTED button.

⁄ 4 Press the STOP button to stop playback.

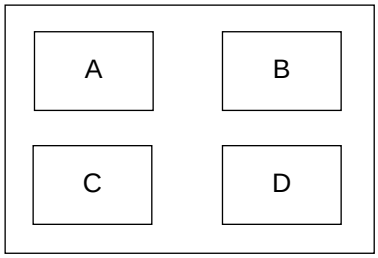
The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live image will be displayed on the monitor 2 and the VGA monitor.

● Detection Mode

Set how to detect motion in the set motion detection area.
There are 3 detection modes as follows:

Important
It is impossible to set two or more detection modes simultaneously.

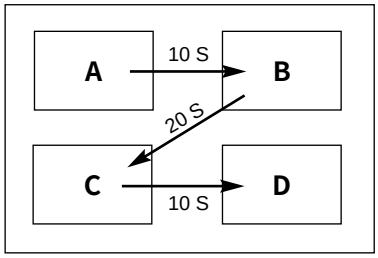
<ANY AREA mode>
It will be subject to be listed if "motion" is detected in any of the set motion detection areas.



Any motion will be detected anywhere in the A, B, C, D areas.

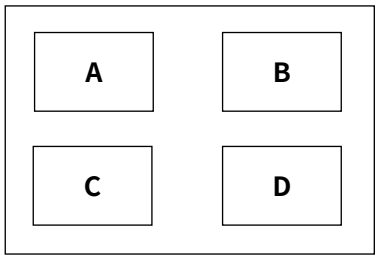
Note: In the ANY AREA mode, it is possible set the masking duration. When the masking duration is set, motion will be ignored for a certain period (set duration as the masking duration) in the same area. It will be convenient to set the masking duration to make the subject period shorter in case that it is required to search from the long time range or searching results are too many.

<VECTOR mode>
It will be subject to be listed if an object moves within the set time to the other detection areas in the set order.
The following is an example.



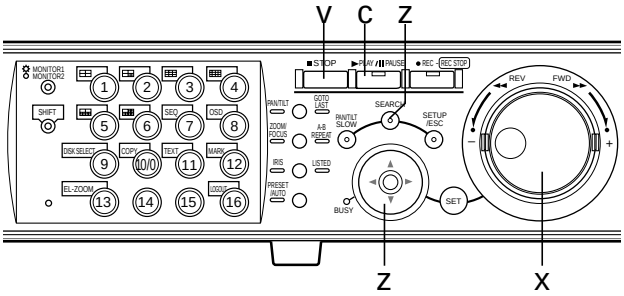
Motion is detected in area B within 10 seconds after being detected in area A.
Motion is detected in area C within 20 seconds after being detected in area B.
Motion is detected in area D within 10 seconds after being detected in area C.
When all of the above have occurred, an event action will be performed.

<DURATION mode>
It will be subject to be listed if an object keeps on moving for the set period in the detection area. For example, in case of the following settings; 10 sec. for areas A and B, 20 sec. for area C and 30 sec. for area D:
An event action will be performed when an object keeps on moving more than the set period in the specified detection area.



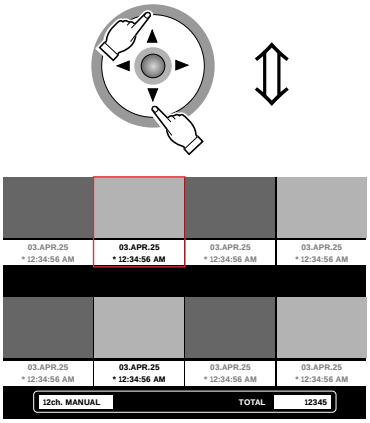
■ Searching a marked point and play from that point (Marking search)

Display the recording time of recorded images with a marked point in a list or a thumbnail and select the desired recording time to play. Refer to page XX for further information about marking.



z Press the SEARCH button repeatedly until the marking list window is displayed.

The result list of the marking search will be displayed on the monitor 2 and the VGA monitor.
Use the arrows button (D C) to switch displaying the list window and the thumbnail window alternately.



To delete all displayed marking list, press the camera selection buttons [1] and [2] simultaneously for 2 seconds or more when displaying the marking list window.

x Rotate the jog dial to select a desired marked time.

c Press the PLAY/PAUSE button.

The LISTED indicator and the indicator on the PLAY/PAUSE button will light, and playback a recorded image from the selected marked time will start.

Notes:

- It is possible to skip the playback point to the listed time (marked time) by rotating the jog dial when the LISTED indicator is lit.
  To return to the normal playback, press the LISTED button.
- It is possible some recorded images with marked point may have been deleted by overwrite recording or the deleting function.

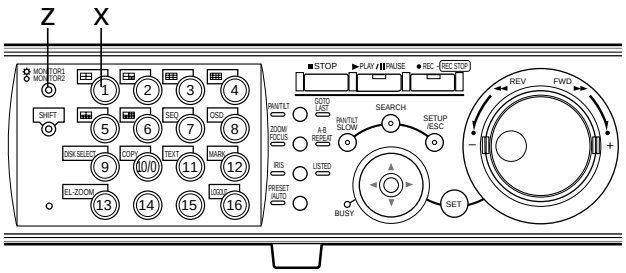
v Press the STOP button.

The indicator on the PLAY/PAUSE button will go off and playback will be stopped.
Live image will be displayed on the monitor 2 and the VGA monitor.

MONITOR LIVE IMAGES

It is possible to display live images on a single screen or a multi-screen.
on a singleSequential display (displaying images from cameras will be switched automatically is also available.

■ Displaying Live Images on a Single Screen



z Press the MONITOR1/MONITOR2 button to select the monitor.

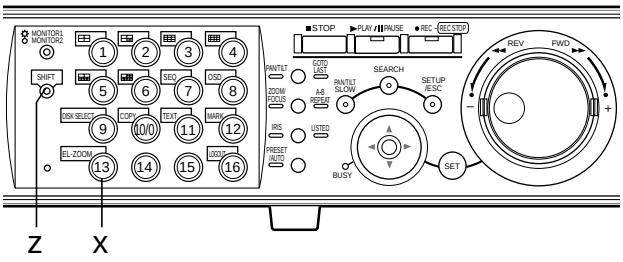
When the monitor 1 is selected, the indicator will light.
When the monitor 2 or the VGA monitor is selected, the indicator will not light.

x Press a camera selection button (1 - 16 for WJ-HD316, 1 - 9 for WJ-HD 309) to select a camera.

Live image from the selected camera will be displayed and the respective camera selection button will light green or blue.
When the monitor 2 is selected, live image will be displayed on the VGA monitor.

■ Electronic Zoom

When displaying on a single screen, zooming of the displayed image is possible.
Electrical zoom is available only on the selected monitor.
When the MONITOR1/MONITOR2 indicator is lit (the monitor 1 is selected), electronic zoom works only on the monitor 1.



z Press the SHIFT button when monitoring live image on a single screen.

The SHIFT indicator will light.

x Press the EL-ZOOM button to enlarge the displayed image.

The displayed image will be displayed with x2 zoomed size.
Zooming portion will change each time the EL-ZOOM button is pressed.
x2 – x4 - OFF

Notes:

- When image is zoomed (x2 or x4), it is possible to move the zoomed image using the arrows button.
- When any indicator of PAN/TILT, ZOOM/FOCUS, IRIS, PRESET/AUTO is lit, it is impossible to use the EL-ZOOM function.

■ Displaying on a Multi-screen

It is possible to display images on a multi-screen (4, 7, 9, 10, 13, 16 for WJ-HD316, 4, 7, 9 for WJ-HD306).

z Press the MONITOR1/MONITOR2 button to select the monitor.

When the monitor 1 is selected, the indicator will light.
When the monitor 2 is selected, the indicator will not light.

x Press the SHIFT button.

The SHIFT indicator will light.

c Press a camera selection button 1 - 6 (1 - 3 for WJ-HD306) to select a desired multi-screen.

Camera selection button 1: 4 split screen
Camera selection button 2: 7 split screen
Camera selection button 3: 9 split screen
Camera selection button 4: 16 split screen (Only for WJ-HD316)
Camera selection button 5: 10 split screen (Only for WJ-HD316)
Camera selection button 6: 13 split screen (Only for WJ-HD316)

The camera selection buttons respective to live images displayed on a multi-screen will light green or blue.

When the monitor 2 is selected in step 1, live images will be also displayed on the selected multi-screen on the VGA monitor.

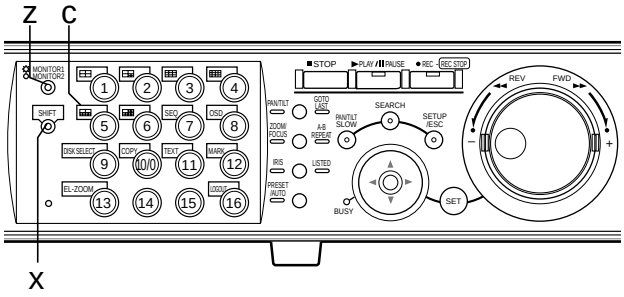
To display on a single screen
Press the SHIFT button. The SHIFT indicator will go off.
Press any of camera selection buttons.
Live image will be displayed on a single screen.

When displaying on a 4 split screen
Each time the camera selection button 4 is pressed, displayed camera channels will be changed as follows:
WJ-HD316: 1-4 CH – 5-8 CH – 9-12 CH – 13-16 CH
WJ-HD306: 1-4 CH – 5-8 CH – 9 CH

When displaying on a 9 split screen
Each time the camera selection button 9 is pressed, displayed camera channels will be changed as follows:
Only for WJ-HD316: 1-9 CH – 10-16 CH

■ Sequential Display

Displayed images from cameras will be switched automatically.
Camera images will be displayed sequentially according to the settings performed in advance.



z Press the MONITOR1/MONITOR2 button to select the monitor.

When the monitor 1 is selected, the indicator will light.
When the monitor 2 is selected, the indicator will not light.

x Press the SHIFT button.

The SHIFT indicator will light.

c Press the SEQ button.

The camera selection button respective to displayed image will light green.
To stop sequential display, press the SEQ button.
When trying to display on a single screen or multi-screen during the sequential display, sequential display will be stopped.
When the monitor 2 is selected in step 1, sequential display will also start on the VGA monitor.

CONTROL CAMERAS

When displaying live images, the following camera controls are possible.

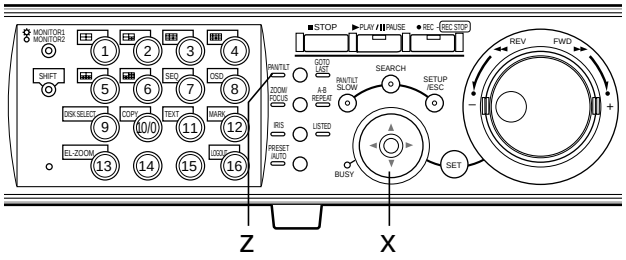
- Panning/tilting: Moves a camera horizontally/vertically.
- Zooming: Zooms in/out images.
- Focus: Adjusts the focus.
- Iris: Adjusts the iris of the lens.
- Preset action: Moves a camera to the preset position registered in advance.
- Auto pan: Pans a camera automatically from the start point to the end point registered in advance.

Notes:

- Controlling cameras is possible only when displaying images on a single screen.
- Depending on models of the connected cameras, it may be impossible to control the camera or some functions may be not available.
- Refer to page xx for descriptions of how to display and perform the settings with the settings menu of the camera from this unit.

■ Panning/Tilting

Moves a camera horizontally/vertically.



z Press the PAN/TILT button.

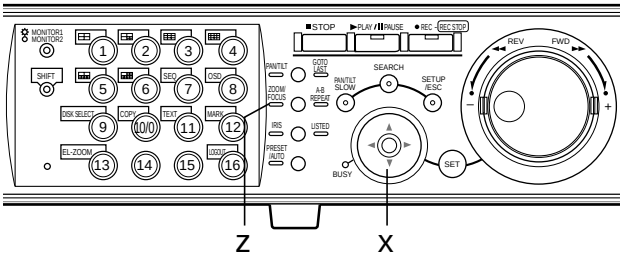
The PAN/TILT indicator will light.

x Use the arrows button to adjust vertical or horizontal position.

Camera will move slowly by pressing the arrows button while holding the SLOW button down.

■ Zoom

Zooms in/out on images. Depending on models of the connected cameras, the image size for the respective zooming portion may be different. For further information, refer to the operating instruction for the camera.



z Press the ZOOM/FOCUS button.

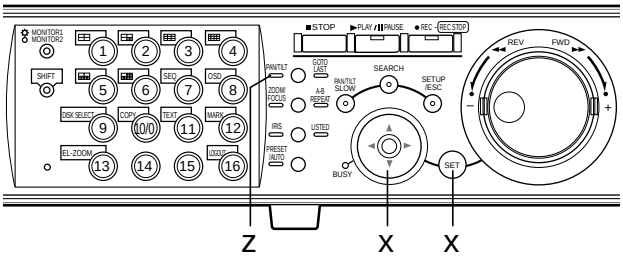
The ZOOM/FOCUS indicator will light.

x Use the arrows button (D C) to zoom the displayed image.

Press the arrows button downward (D) to zoom out and upward (C) to zoom in.

■ Focus

Adjusts the focus. The auto focus function is available.



z Press the FOCUS button.

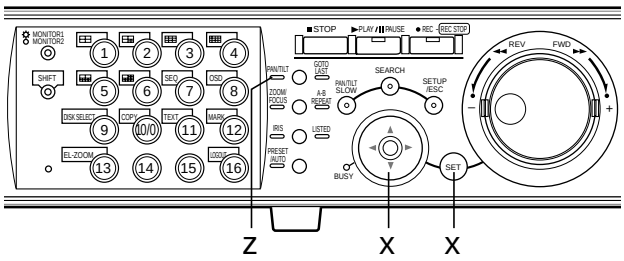
The ZOOM/FOCUS indicator will light.

x Use the arrows button (A B) to adjust the focus.

Auto focus is available by pressing the SET button.

■ Iris

Adjusts the iris of the lens.



z Press the IRIS button.

The IRIS indicator will light.

x Use the arrows button (A B) to adjust the iris.

To reset the set iris, press the SET button.

■ Preset Action

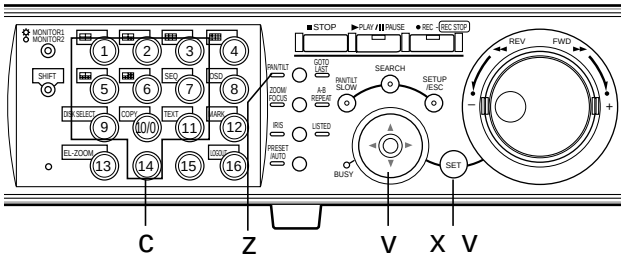
Moves a camera to the preset position registered in advance.

Important

When using WV-CS650 or WV-CS600A, register preset positions using the settings menu of the camera.

● Register Preset Positions of Cameras

Up to 64 preset positions can be registered.



z Press the PAN/TILT button and move the camera to a desired position to be registered as a preset position.

[2] Press the SET button.The preset registration window will be displayed.

c Press a camera selection button (1 - 10/0 for WJ-HD316, 1 - 9, 0 for WJ-HD309) to register a preset position number.

Pressed button number will be registered as a preset position number.

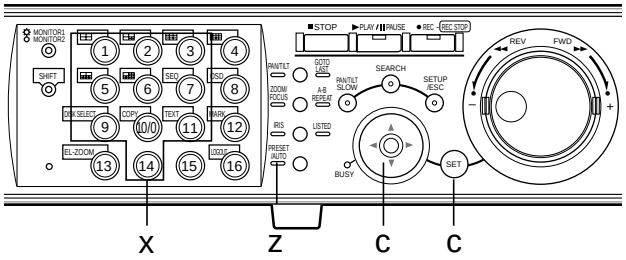
The jog dial also can be used to select a preset position number by rotating it.

Up to 64 can be registered as a preset position number.

v Select "OK" using the arrows button and press the SET button.

The adjusted camera position (currently displayed on the monitor) will be registered as a preset position with the selected preset position number.
To cancel the selected preset position, select "CANCEL" using the arrows button and press the SET button. The setting will be canceled and the preset registration window will be closed.

■ Move a camera to the preset position



z Press the PRESET/AUTO button.

The PRESET/AUTO indicator will light and the PRESET/AUTO PAN window will be displayed.

x Press a camera selection button (1 - 10/0 for WJ-HD316, 1 - 9, 0 for WJ-HD309) to select a desired preset position.

The jog dial also can be used to select a preset position number by rotating it.

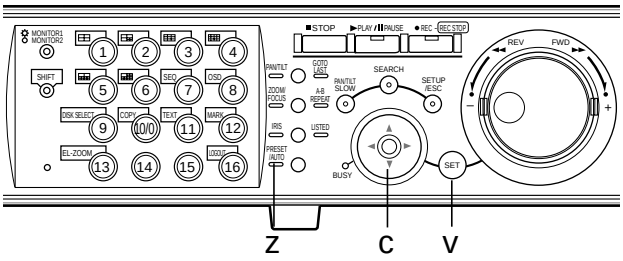
c Select "OK" using the arrows button and press the SET button.

The PRESET/AUTO PAN window will be closed and the camera will move to the selected preset position.
When selecting "CANCEL" using the arrows button and press the SET button, the PRESET/AUTO PAN window will be closed.

Note: To move the camera to another registered preset position, press the SET button after selecting a desired preset position number in step 2. The PRESET/AUTO PAN window will not close and it is possible to select another preset number continuously.

■ Auto Panning

Pans a camera automatically from the start point to the end point registered in advance.



z Press the PRESET/AUTO button.

The PRESET/AUTO indicator will light and the PRESET/AUTO PAN window will be displayed.

x Move the cursor to "AUTO PAN" using the arrows button and check the radio button next to "AUTO PAN" using the jog dial.

c Select "OK" using the arrows button and press the SET button.

The PRESET/AUTO PAN window will be closed and auto panning will start.

During auto panning, it is impossible to register preset position. To cancel the auto panning, select "CANCEL" using the arrows button and press the SET button. The setting will be canceled and the PRESET/AUTO PAN window will be closed.

ABOUT THE EVENT FUNCTION

The event action will be performed when the following events occur.

- Terminal alarm: When a signal is supplied from an external device such as a door sensor to the ALARM terminal, this is stated as an event of the terminal alarm.
- Motion detection: When motion is detected by the motion detection function (see below), this is stated as an event of the motion detection.
- Video Loss: When a video signal supply is stopped because of a cable disconnection or malfunction of a camera, this is stated as an event of the video loss.
- Command alarm: When a command alarm is supplied from a PC connected to the SERIAL connector on the rear panel of this unit, this is stated as an event of the command alarm.

About the Motion Detection Function (VMD)

An alarm signal will be supplied when motion (luminance transition) is detected in a designated area. It is possible to save images recorded in the place where motion is detected, or send e-mails when motion is detected.
Refer to a system administrator for further information about the required settings for the motion detection function such as the settings of the detection area.

■ Action at an event occurrence

The event action will be performed according to the settings when an event occurs.
There are 2 event action modes for the alarm mode (ALM) and the activity mode (ADM) for each event type. The event action will be different according to the set event action mode.
When an event of the alarm mode (ALM) occurs, this unit activates the alarm action.

About the event action mode

● Alarm Mode (ALM)

This mode notifies an event occurrence outside. Action taken in the alarm mode is referred as the alarm action.

● Activity Detection Mode (ADM)

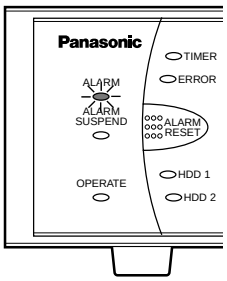
This mode records images in the place where an event occurred without notifying outside.

Event Action	Alarm Mode	Activity Detection Mode
Start recording	b	b
Displays event information on the monitor.	b	✓
Blinks the alarm indicator.	b	✓
Sounds the buzzer.	b	✓
Switches the displayed image to the image from a location of an alarm occurrence.	b	✓
Move a camera to the preset position.	b	b
Notifies an event occurrence by sending e-mails.	b	✓
Notifies an event occurrence by the PS·DATA/RS232C commands.	b	✓
Supplies a signal from the ALARM connector or the ALARM/CONTROL connector on the rear panel of this unit (Alarm signal output).	b	✓
Record the event log.	b	b

b : Applicable ✓ : Not applicable

■ Alarm Function

● **Blinks the ALARM indicator on the front panel**



● **Switches the displayed images on the monitor 1 and the monitor 2 to the images from a location of an alarm occurrence (on a single screen)**

● **Displays the event information in the alarm display area on the monitor 1 and the camera title display area on the monitor 2**

● **Sounds the buzzer**

Contact to a system administrator about sounding duration.

● **Notifies an event occurrence to the connected system device (Alarm Output)**

Sends a signal to the device connected to the ALARM/CONTROL connector, and the connected device such as a buzzer will be activated.

● **Starts recording automatically**

Starts recording the image from a location of an event occurrence automatically.

● **Moves a camera to the preset position**

A camera will move to the preset position registered in advance.

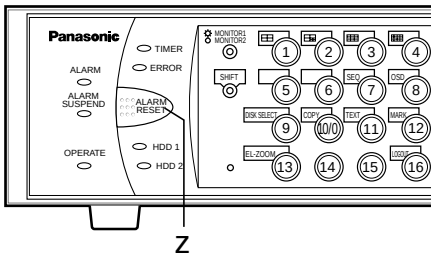
● **Notifies an event occurrence by sending e-mails**

E-mails will be sent to addresses registered in advance. Refer to the Network Operating Instructions (pdf) on the provided CD-ROM.

■ Cancel the Alarm Action

When an alarm occurred, this unit will start the alarm action according to the selected alarm action mode.
To cancel the alarm action, press the ALARM RESET button.
When "ON" is selected for "Alarm Auto Reset" (on the "Alarm Setup" menu of "Event"), the followings will be performed automatically even if the alarm action is not canceled by pressing the ALARM RESET button on the front panel.

- The ALARM indicator will stop blinking and light steadily
- The displayed alarm information will disappear
- The buzzer will stop beeping

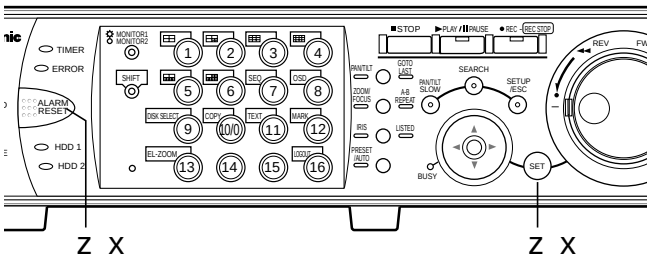


z Press the ALARM RESET button to cancel the alarm actions.

The ALARM indicator will go off.

■ Suspend the Alarm Actions

It is possible to suspend (deactivate temporarily) the alarm actions even when an event occurred.
This function will be useful when required not to activate the alarm actions for a certain period, such as when configuring the system. However, images and event log will be recorded even when alarm actions are suspended.



● To suspend (deactivate temporarily) the alarm actions

z Press both the ALARM RESET button and the SET button at the same time.

The ALARM SUSPEND indicator will light.

● To stop suspending the alarm actions

x Press both the ALARM RESET button and the SET button at the same time again.

The ALARM SUSPEND indicator will go off.

Note: When an external switch is connected to the ALARM/CONTROL connector on the rear panel, it is possible to suspend the alarm actions using the external switch.
In this case, the alarm actions will be suspended when the external switch is on.
To stop suspending the alarm actions, set the external switch to off.

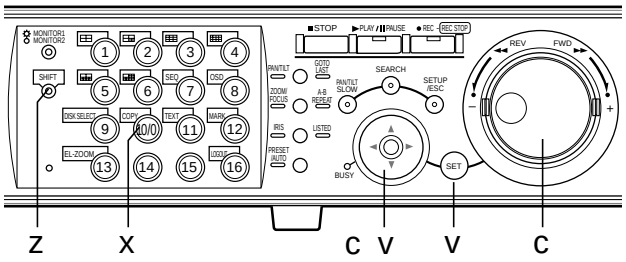
COPYING (Duplicate)

It is available to copy (duplicate) manually the recorded images in the copy area of the built-in hard disk to the external recording device (DVD-RAM disk, DVD-R disk, CD-R disk) connected to the unit.
It is recommended to make back-up copies on a regular basis for unexpected situations such as malfunction of the hard disk.
Manual copy is available during the following.

- While displaying of live images
- While pausing playback of recorded images
- When displaying a searching window (Recording event list window, VMD search list window, Marking list window)
  (Manual copy is not available when a thumbnail window is displayed.)

Notes:

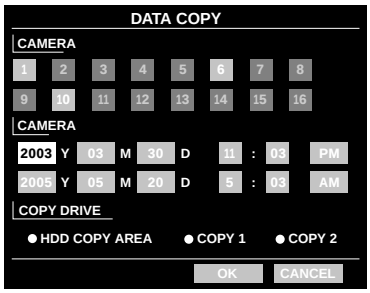
- The auto copy function is available for copying recorded images automatically. When the auto copy function is enabled, manual copy is not available. Refer to a system administrator for further information about the auto copy function.
- To copy during playback of recorded images, pause playback temporarily.
- To copy recorded images on the DVD-RAM disk, formatting (initializing) the DVD-RAM disk is required in advance. Refer to page xx for the descriptions of how to format DVD-RAM disks.



z Press the SHIFT button.

The SHIFT indicator will light.
To copy recorded image during playback, pause the playback temporarily.

x Press the COPY button.

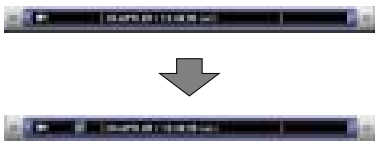


The DATA COPY window will be displayed on the monitor 2 and the VGA monitor.
The DATA COPY window will not be displayed when a thumbnail window is displayed.
In this case, display a list window using the arrows button (D C).

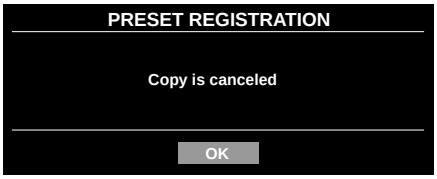
c Perform the settings for data copy (camera channel, time range, a disk on which images is to be copied). Move the cursor to each setting item using the arrows button and select a parameter rotating the jog dial.

v Select "OK" button using the arrows button and press the SET button.

The DATA COPY window will be closed and data copy will start.
The copy icon will be displayed on the task bar during copying.
To close the DATA COPY window, select "CANCEL" using the arrows button and press the SET button. The setting will be canceled and the DATA COPY window will be closed.



When the selected COPY DRIVE is not found, copying will not start and the DATA COPY window will not be closed even when the SET button is pressed after selecting "OK".



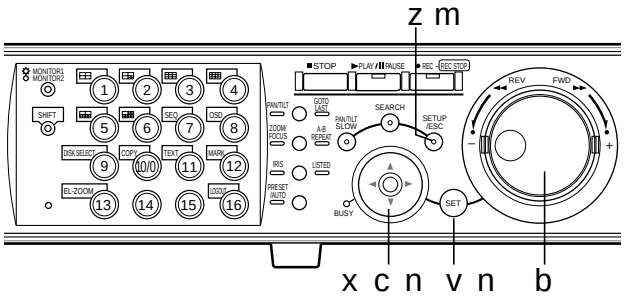
Perform the settings for the built-in hard disk of the unit, of the extension unit and the DVD-RAM disk. These are the descriptions of how to delete recorded images on the hard disk and how to format a DVD-RAM disk.
Refer to a system administrator for further information about the other disks.

■ Deletion of recorded images saved on the hard disk manually

Delete recorded images saved in the normal area or the event area of the hard disk manually.
By setting a time and date, images in the normal record area of the hard disk recorded before the set time and date will be deleted.
It is recommended to delete manually when available disk space is running out.

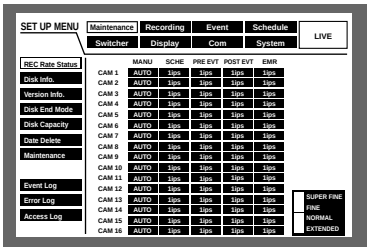
Important
It is impossible to recover the deleted images.

Note: It is possible to delete recorded images automatically when the set days have passed from the day the image was recorded (Auto Delete). Refer to a system administrator for further information.



z Press the SETUP/ESC button for 2 seconds or more.

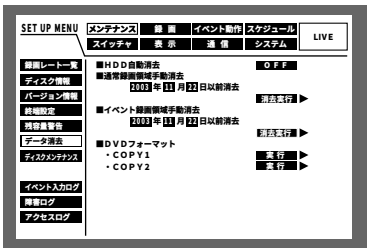
The SETUP MENU will be displayed on the monitor 2 and the VGA monitor.



x Move the cursor to "Maintenance" using the arrows button (D C A B) and press the SET button.

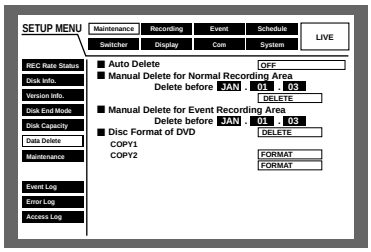
c Move the cursor to "Data Delete" using the arrows button (D C).

The "Data Delete" menu will be displayed.



v Press the SET button.

The cursor will be displayed on the "Data Delete" menu.



b Move the cursor to "Manual Delete for Normal Recording Area" or "Manual Delete for Event Recording Area" using the arrows button, and set time and date using the jog dial.The images recorded by a day before the set time and date will be subject to be deleted.

n Move the cursor to "DELETE" and press the SET button.

The confirmation window will be displayed.

m **Select "OK" using the arrows button and press the SETUP/ESC button.**

To not delete, select "CANCEL".

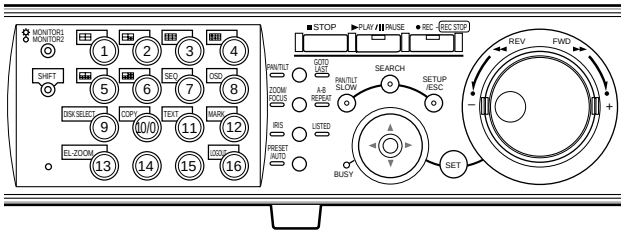
, **Press the SET button for 2 seconds or more.**

The SETUP MENU will be closed and live image will be displayed.

FORMAT (INITIALIZE) A DVD-RAM DISK

To copy (duplicate) recorded images onto the DVD-RAM disk, formatting (initializing) the DVD-RAM disk is required in advance.
To delete images recorded on the DVD-RAM disk, formatting (initialization) of the DVD-RAM disk will be necessary.

Important
All data on the disk will be deleted if formatted (initialized). It is impossible to recover the deleted images.



z Press the ESC/SETUP button for 2 seconds or more.

The SETUP MENU will be displayed on the monitor 2 and the VGA monitor.

x Select "Maintenance" using the arrows button and press the SET button.

c Select "Data Delete" using the arrows button (D C).

v Press the SET button.

The cursor will be displayed on the "Data Delete" menu.

b Select whether "COPY1" or "COPY2" (port to which the DVD-RAM is connected) for "Disc Format of DVD" using the arrows button.

n **Press the SET button to select "FORMAT". The confirmation window will be displayed.**

m **Move the cursor to "OK" and press the SET button to start formatting.**

To not start formatting, select "CANCEL" and press the SET button.
During formatting, the status window will be displayed.
The status window will be closed automatically when completing formatting.

, **Press the SETUP/ESC button to close the SETUP MENU window.**

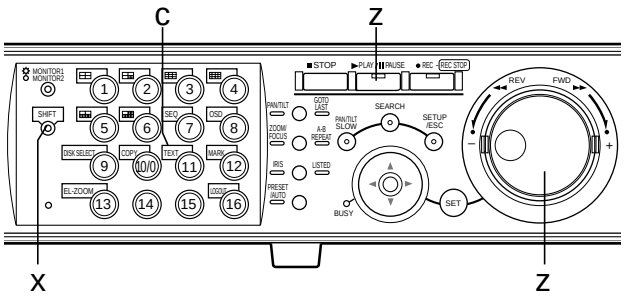
Live image will be displayed on the monitor 2 and the VGA monitor.

DISPLAY/EDIT TEXT INFORMATION

It is possible to attach text information to images when recording.
Entering 20 characters for a line (up to 10 lines, with a total of 200 characters) for text information is possible.
These are the descriptions of how to display/edit the attached text information to images.

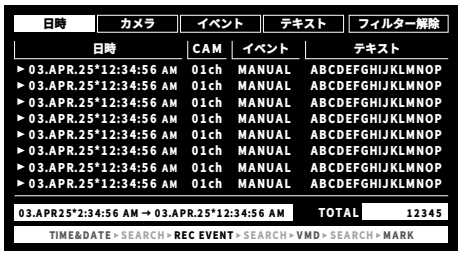
Note: Displaying/editing text information is possible during the following.

- While pausing playback on a single screen
- While displaying the recording event list window



z <While pausing playback on a single screen>
Press the PLAY/PAUSE button to stop playback.

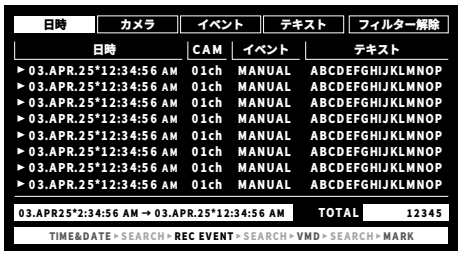
<While displaying the recording event list window>
Select a desired recording event by rotating the jog dial.



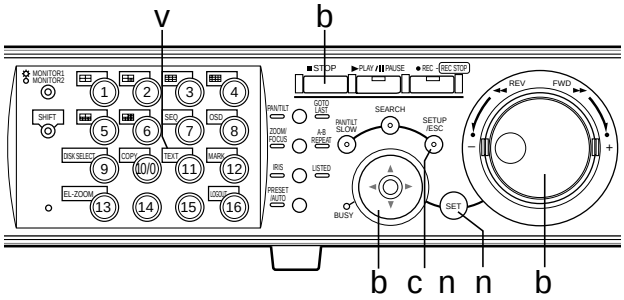
x Press the SHIFT button.

The SHIFT indicator will light.

c Press the TEXT button to display the TEXT INFORMATION window.



Text information attached to the paused playback image or text information attached to the selected recording event will be displayed.
To close the TEXT INFORMATION window, press the SETUP/ESC button or the SET button.



v Press the TEXT button again to edit text information.

b Edit text information using the arrows button and the jog dial.

- **To insert a character**
  Move the cursor to a desired point where a character to be inserted using the arrows button, and select a character using the jog dial.
- **To delete a character**
  Move the cursor to a character to be deleted using the arrows button, and press the STOP button.

- **To delete all characters**
  Press the STOP button for 2 seconds or more.
- **Available characters**
  The following characters can be entered:
  A B C D E F G H I J K L M N O P Q R S T U V W XY Z a b c d e f g h i j k l m n o p q r s t u v w x y z 0 12 3 4 5 6 7 8 9!"#$%' ()*+, - ./: ;<=>?@[¥] ^ _`{|}~SP(space)

n Press the SET button to apply the edited characters.

To cancel the edit, press the SETUP/ESC button. The edited characters will not be applied.

ERROR/WARNINGS

- **The "error" status**
  When a fatal error (highly possible to cause the system down) occurred, the ERROR indicator will blink red.

- **The "warning" status**
  When an error (even though it will not cause the system trouble yet, but it is possible to become a fatal error) occurred, the ERROR indicator will blink orange.

Indication	Status	Description	Solution
ALT-*	Error	Recorded image had altered. Playback will be paused.	Press the ALARM RESET button to cancel the error status. Press the PLAY/PAUSE button to resume playback.
R-ERROR	Error	Failed to read data from the HDD. The HDD may be malfunctioning.	Press the ALARM RESET button to cancel the error status. Contact the dealer to replace the hard disk.
W-ERROR	Error	Failed to write data on the HDD.	Press the ALARM RESET button to cancel the error status. Contact the dealer to replace the hard disk.
SMART	Warning	The hard disk may be malfunctioning and may not work correctly.	Press the ALARM RESET button to cancel the warning status. Contact the dealer to replace the hard disk.
H-METER	Warning	The set time for the HOUR METER has passed. (Refer to page XX.) It may be reaching the end of the hard disk's lifetime.	Press the ALARM RESET button to cancel the warning status. Contact the dealer to replace the hard disk.
THERMAL	Warning	Thermal error of the unit or the extension unit is detected.	Press the ALARM RESET button to cancel the warning status. In case thermal error occurs frequently, the unit may be malfunctioning. Contact the dealer.
POWER	Warning	The power outage alert signal is supplied from the uninterruptible power supply system (UPS). Internal processing will start when the set time for "Shutdown Time" on the "Basic Setup" menu of "System" has passed after received the power outage alert signal. (Refer to page XX.) When the internal processing starts, recording will stop and all operations will be invalid.	Press the ALARM RESET button to cancel the warning status. The unit will start operation automatically after the UPS starts power supply.
#-nn% (available disk size is running out) #-FULL (no available disk size)	Error Warning	The hard disk is almost full or completely full.	Press the ALARM RESET button to cancel the error or the warning status. Initialize or replace the hard disk. (Refer to page XX.) When initialized, all recorded data will be deleted. It is recommended to copy the data using an external recording device.
		The DVD-RAM disk is almost full or completely full.	Press the ALARM RESET button to cancel the error or the warning status. Initialize the DVD-RAM disk. (Refer to page XX.) When initialized, all recorded data will be deleted.
		The CD-R or DVD-R disk is almost full or completely full.	Press the ALARM RESET button to cancel the error or the warning status. Replace the disk with new one.

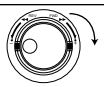
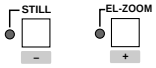
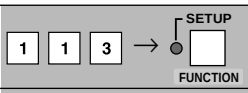
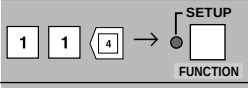
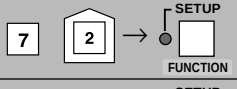
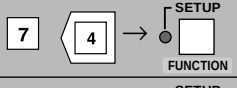
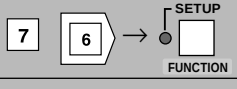
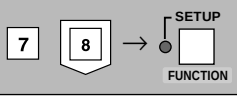
Indication	Status	Description	Solution
MEDIUM-n	Warning	The external recording device is not operable because no disk or different format disk is inserted, etc.	Press the ALARM RESET button to cancel the warning status. Confirm that a disk is inserted, or check the inserted disk format.
REMOVE	Error	An error occurred on the hard disk and the hard disk is unmounted from the system automatically.	Press the ALARM RESET button to cancel the error status. Contact the dealer.
FAN	Warning	The fan of this unit or the extension unit is malfunctioning. It may produce an increase in temperature in the unit and cause malfunction of the HDDs.	Press the ALARM RESET button to cancel the warning status. Contact the dealer.

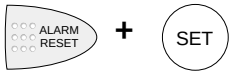
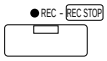
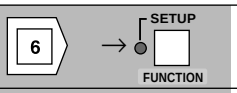
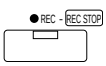
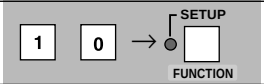
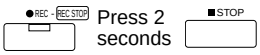
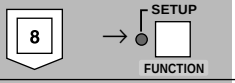
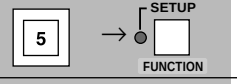
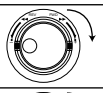
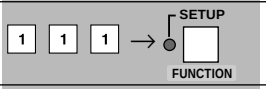
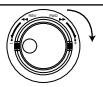
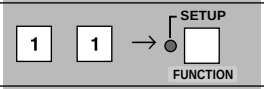
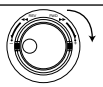
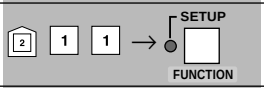
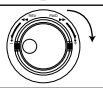
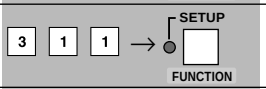
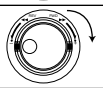
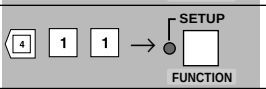
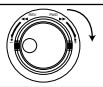
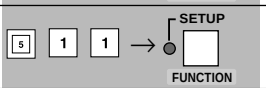
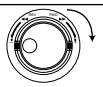
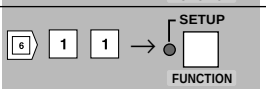
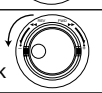
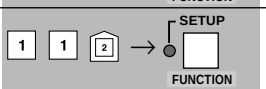
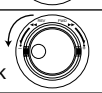
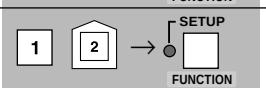
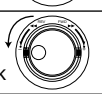
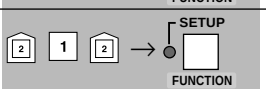
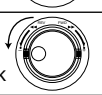
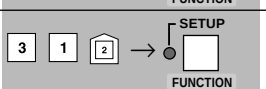
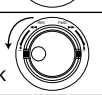
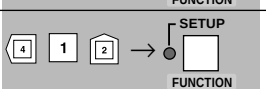
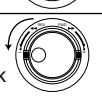
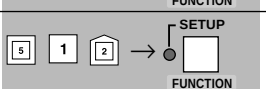
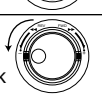
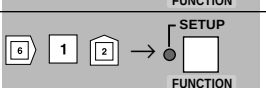
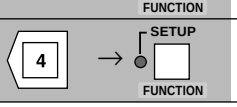
* : Camera number
\# : Partition number (Refer to page XX.)
nn : Available disk space (percentage)
n : COPY port number to which an external recording device is connected

OPERATION USING A SYSTEM CONTROLLER

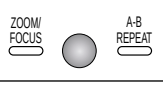
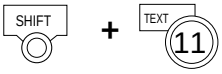
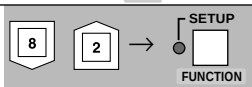
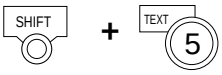
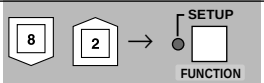
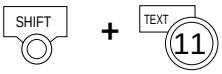
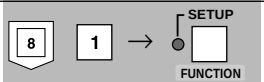
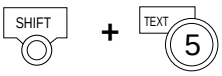
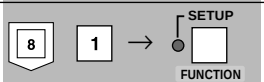
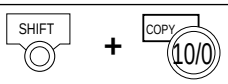
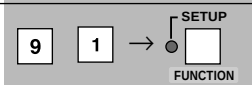
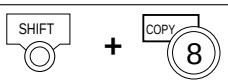
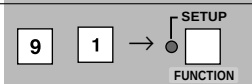
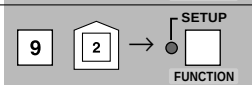
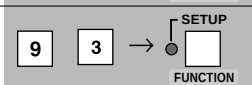
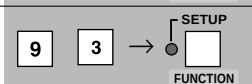
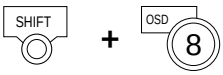
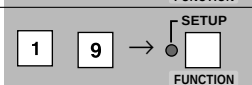
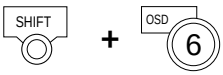
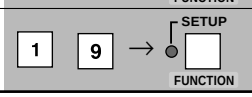
It is possible to operate this unit using a PS·Data compatible system controller.
The followings are the descriptions of how to operate this unit using the system controller WV-CU360C.
To operate this unit using a PS·Data compatible system controller, perform the required settings in advance. Refer to a system administrator for further information.

Note: To perform the operation with buttons with the shadowed background ( ), press the SHIFT button of the system controller to light the SHIFT indicator on the right side of the SHIFT button.

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Open/Close the SETUP MENU			
Select an item			
Change the set parameter			
Change the cursor position	SET		
Press a button on the pop-up menu	SET		
Return to the previous menu			
Summer time OFF	Set on the SETUP MENU		
Summer time ON	Set on the SETUP MENU		
Timer recording OFF	Set on the SETUP MENU		
Timer recording EXT	Set on the SETUP MENU		
Display the recording event list			Press the [5] button to select whether to display the searching filter window or not.
Display the VMD search list			
Display the marking list			
Display the menu for playback by designating time and date			Press the SET button to resume playback.
Move the cursor for searching item	Press A or B.		
Display a list/thumbnail Move the cursor to select			
Close the searching window			

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Alarm reset			
Alarm suspension			
Manual recording			
Stop manual recording	 Press for 2 seconds or more		Available only during recording
Stop playback/manual recording			Both recording and playback will be stopped if operating the controller as shown on the left.
Play			Press the SET button to play the selected result from the searching window.
Play at normal speed	During playback  Rotate the shuttle ring		
Play at 2x speed	During playback  Rotate the shuttle ring		
Play at 5x speed	During playback  Rotate the shuttle ring		
Play at 10x speed	During playback  Rotate the shuttle ring		
Play at 20x speed	During playback  Rotate the shuttle ring		
Play at 50x speed	During playback  Rotate the shuttle ring		
Play at 100x speed	During playback  Rotate the shuttle ring		
Reverse play at normal speed	During playback  Rotate the shuttle ring		
Reverse play at 2x speed	During playback  Rotate the shuttle ring		
Reverse play at 5x speed	During playback  Rotate the shuttle ring		
Reverse play at 10x speed	During playback  Rotate the shuttle ring		
Reverse play at 20x speed	During playback  Rotate the shuttle ring		
Reverse play at 50x speed	During playback  Rotate the shuttle ring		
Reverse play at 100x speed	During playback  Rotate the shuttle ring		
Pause playback			Available only during playback

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Skip to the next frame	During pausing Rotate the jog-daial	1 → SETUP / FUNCTION	Available only during pause
Skip to the previous frame	During pausing Rotate the jog-daial	2 → SETUP / FUNCTION	Available only during pause
Skip forward	During playback Rotate the jog-daial	4 1 → SETUP / FUNCTION	The point to be skipped will be different between normal playback and filtered playback.
Skip backward	During playback Rotate the jog-daial	4 2 → SETUP / FUNCTION	The point to be skipped will be different between normal playback and filtered playback.
Mark start point for the A - B repeat playback	ZOOM/FOCUS A-B REPEAT	5 2 → SETUP / FUNCTION	Available only during playback
Mark end point for the A - B repeat playback	ZOOM/FOCUS A-B REPEAT	5 3 → SETUP / FUNCTION	Available only during playback
Cancel the A-B repeat playback	ZOOM/FOCUS A-B REPEAT	5 1 → SETUP / FUNCTION	Available only during playback
Skip to the latest recorded image	PAN/TILT GOTO LAST	5 5 → SETUP / FUNCTION	Available only during playback
Filtering off	IRIS LISTED	6 1 → SETUP / FUNCTION	Available only during the filtered playback
Filtering on	IRIS LISTED	6 2 → SETUP / FUNCTION	Available only when it is possible to switch to the filtered playback
Mark a point (For WJ-HD316)	SHIFT + Mark 12	6 5 → SETUP / FUNCTION	
Mark a point (For WJ-HD309)	SHIFT + Mark 9	6 5 → SETUP / FUNCTION	
Select the monitor 1	MONITOR1 / MONITOR2	1 → MON / ESC	
Select the monitor 2	MONITOR1 / MONITOR2	2 → MON / ESC	
Sequential display ON (For WJ-HD316)	SHIFT + SEQ 7	SEQUENCE	It is possible to stop the sequential display by pressing a camera selection button.
Sequential display ON (For WJ-HD309)	SHIFT + SEQ 4	SEQUENCE	It is possible to stop the sequential display by pressing a camera selection button.
Select a camera (For WJ-HD316)	Camera selection buttons (1 - 16)	Camera number → CAM / SET	
Select a camera (For WJ-HD309)	Camera selection buttons (1 - 9)	Camera number → CAM / SET	
Select a multi-screen (For WJ-HD316)	SHIFT + 1 ≀ SHIFT + 6	MULTI SCREEN SELECT	4-split screen: For WJ-HD316: 1 - 4 CH → 5 - 8 CH → 9 - 12 CH →13 - 16 CH → 1 - 4 CH ... For WJ-HD309: 1 - 4 CH → 5 - 8 CH → 9 CH → 1 - 4 CH ... 9-split screen: For WJ-HD316: 1 - 9 CH → 10 - 16 CH → 1 - 9 CH... For WJ-HD309: 1 - 9 CH → 10 - 16 CH 16-split screen: Only for WJ-HD316: 1 - 16 CH
Select a multi-screen (For WJ-HD309)	SHIFT + 1 ≀ SHIFT + 3	MULTI SCREEN SELECT	

Item	WJ-HD316/WJ-HD309	WV-CU360C	Note
Zoom ON/OFF			Zooming portion changes in the order: 2x → 4x → 1x
Text information display ON (For WJ-HD316)			Available only when displaying a list or when pausing playback
Text information display ON (For WJ-HD309)			Available only when displaying a list or when pausing playback
Text information display OFF (For WJ-HD316)			Available only when displaying text information
Text information display OFF (For WJ-HD309)			Available only when displaying text information
Display the DATA COPY menu (For WJ-HD316)			Available only when displaying live images or a list, or when pausing playback
Display the DATA COPY menu (For WJ-HD309)			Available only when displaying live images or a list, or when pausing playback
Close the DATA COPY menu	When displaying the copy setup menu 		Available only when displaying the DATA COPY menu
Cancel copying (For WJ-HD316)	During copying 		
Cancel copying (For WJ-HD309)	During copying 		
Switch displayed information (For WJ-HD316)			
Switch displayed information (For WJ-HD309)			

OPERATION USING A PC

It is possible to perform the settings or operate the unit using a web browser installed on a PC when this unit is connected to a network.
The available features and the system requirements of a PC are as follows.
Refer to the Network Operating Instructions (pdf) on the provided CD-ROM.

■ Features

It is possible to operate this unit using a web browser in much the same way as using the buttons on the front panel of this unit.
The following functions are available when using a PC via a network as well as the functions operable using the buttons on the front panel of the unit.

● Downloading/transmitting images

It is possible to download (save) the currently displayed image in the web browser window onto the hard disk of a PC. By establishing an FTP server, it is possible to transmit images to a designated FTP server. When an event occurs, it is possible to transmit images from the camera installed in the place where the event occurred.

● Event notification function

When an event occurs, it is possible to send e-mails to designated addresses to notify of the event occurrence. It is also possible to send an e-mail with a recorded image of the place where the event occurred.

● Host authentication

It is possible to restrict devices from operating this unit if their IP addresses are not registered.

■ System Requirements of a PC

It is recommended to operate this unit using a PC meets the following system requirements.

OS:
One of the following operating systems:
Microsoft® Windows® 2000 Professional SP4
Microsoft® Windows® XP Professional or Home Edition SP1

PC:
IBM PC/AT Compatible

CPU:
Intel Pentium, IV 1.4 GHz or faster

Memory:
256 MB or more

Monitor:
1024 x 768 pixels or more, HIGH color 16 bit or more

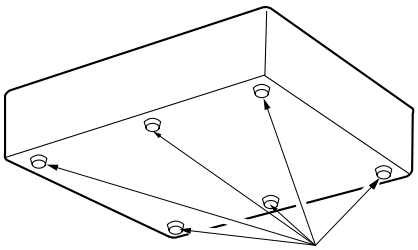
Interface:
Built-in network interface card compatible 10/100 Mbps

Recommended web browser:
Microsoft Internet Explorer 5.5SP2, 6.0 SP1
Other web browsers are not compatible with this unit.

Important
The plug-in software is required to be installed. Install the plug-in software from the provided CD-ROM.
Refer to "readme.txt" on the provided CD-ROM for the descriptions of how to install it.

INSTALLATION IN THE RACK

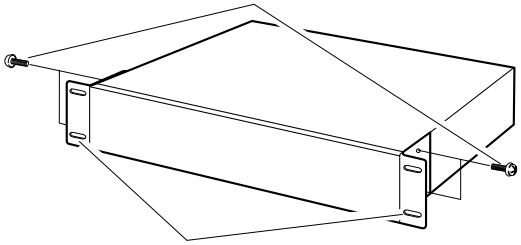
1. Remove the rubber legs (6 pcs.) on the bottom of the unit.
   • Use a flat-blade screwdriver and remove the screws.



Remove the rubber legs.

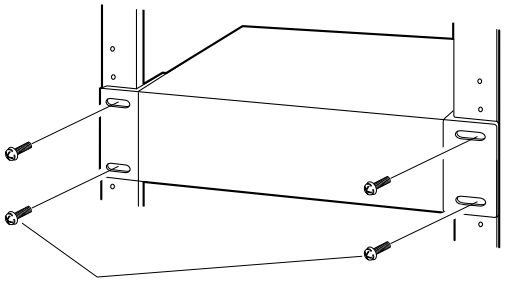
2. Install the rack mounting brackets on both sides of the unit.
   • Using the mounting screws (4 pcs.) for the rack mounting brackets, fix them firmly.

Mounting screws for rack mounting brackets (accessories)



Rack mounting brackets (accessories)

3. Install the unit in the rack.
   • Fix the unit firmly with the rack mounting screws (4 pcs.).



Rack mounting screws
For our rack: Nominal diameter 5 tapping (accessory)

Important:

- The cooling fan inside the unit is perishable and necessary to be replaced periodically.
- Do not block the ventilation openings or slots in the cover to prevent the unit from overheating.
- If the rack is subject to vibration, secure the rear of the unit to the rack using additional mounting brackets (procured locally).

ABOUT THE HDD SAFETY MODE

When maintaining or installing/uninstalling this unit in/from the rack without turning the power of the unit off, do the above work operation after setting the HDD SAFETY MODE to ON.
This can be set on the "Disk Info." menu of "Maintenance".
Refer to page XX for further information.

Important
The HDDs will not start up with the default setting when installing this unit in the rack without turning the power of the unit off, to prevent malfunction caused by shock or vibration.
After completing the installation, set the HDD SAFETY MODE to OFF. Otherwise, the unit will be unable to operate when turning the power on after the shutdown caused by unexpected incident such as power outage.

Operating the unit for the first time

Do the followings when operating the unit for the first time.

Important
When connecting an optional extension unit (WJ-HDE300 series), turn the power of the extension unit before turning the power of this unit on.

z Turn the POWER switch on the rear panel of the unit on.

The OPERATE indicator will light and the system check will start.
The splash window (as shown below) will be displayed on the monitor 2 and the VGA monitor.

When the system check has been completed, the HDD SAFETY MODE window (as shown below) will be displayed.
The camera selection buttons on the front panel (1 - 16 for WJ-HD316, 1 – 9, 0 for WJ-HD309) will light green and orange (for 2 seconds each) alternately.

x Move the cursor to OFF using the arrows button (A B) and press the SET button.

The unit will restart automatically and the system check complete window will be displayed.

c Press the SET button after the system check complete window is displayed.

The HDD DISK MENU window will be displayed.
Perform the settings with this menu according to your needs.
Refer to page XX for further information.

After completing the settings, press any button to close the HDD DISK MENU.
The login window will be displayed.

v Enter a user name and password.

Live image will be displayed on the monitor 2 and the VGA monitor.
Refer to page XX for further information about the user name and password.

Notes:

- With the default setting, all the disk space is set as the normal recording area. Perform the settings of each recording area according to your needs.
- The default user name and password are as follows:
  User name: ADMIN
  Password: 12345

b Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will be displayed.
Adjust the clock of the unit with this menu.
Refer to page XX for further information about clock adjustment.

n With the default setting, the unit is ready to start manual recording. Perform the settings for recordings or event actions according to your needs.

PREPARATION FOR MAINTENACE (RACK MOUNTING/UNMOUNTING, ETC.)

Do the followings before start operation when maintaining or installing/uninstalling the unit in the rack.

z Press the SETUP/ESC button for 2 seconds or more.

The SETUP MENU will be displayed on the monitor 2 and the VGA monitor.

x Select "System" using the arrows button and press the SET button.

c Move the cursor to "Disk Info." using the arrows button (D C) and press the SET button.

v **Move the cursor to "HDD SAFETY MODE" and rotate the jog dial to select "ON ".**

b **Press the SETUP/ESC button for 2 seconds or more.**

The SETUP MENU will be closed.
The unit will restart automatically and the HDD SAFETY MODE window will be displayed.
The HDD safety mode will begin.
The camera selection buttons (1 - 16 for WJ-HD316, 1 – 9, 0 for WJ-HD309) will light green and orange (for 2 seconds each) alternately.
The following window will be displayed after around 30 seconds.

Start maintenance after this window is displayed.
After completing the maintenance, follow the procedures from step 2 of "Operating the unit for the first time" on page xx.

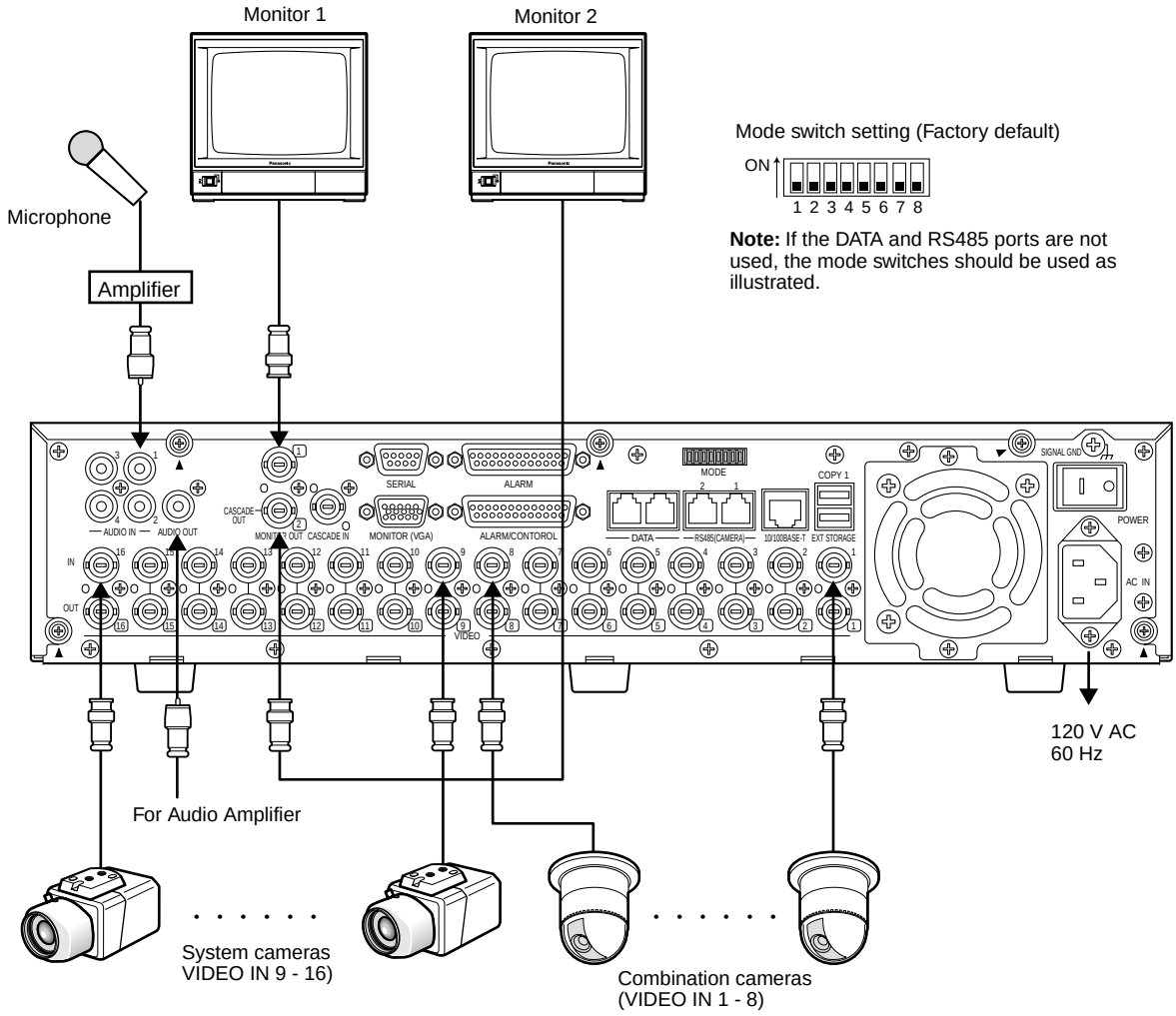
Connections when the unit is used independently:

An example of connections is shown below when the unit is used independently.

Important:

- The power plug should be connected last.
- When connecting combination cameras , connect them to the video input connectors 1 - 8 (for coaxial communication).

● Examples of connections

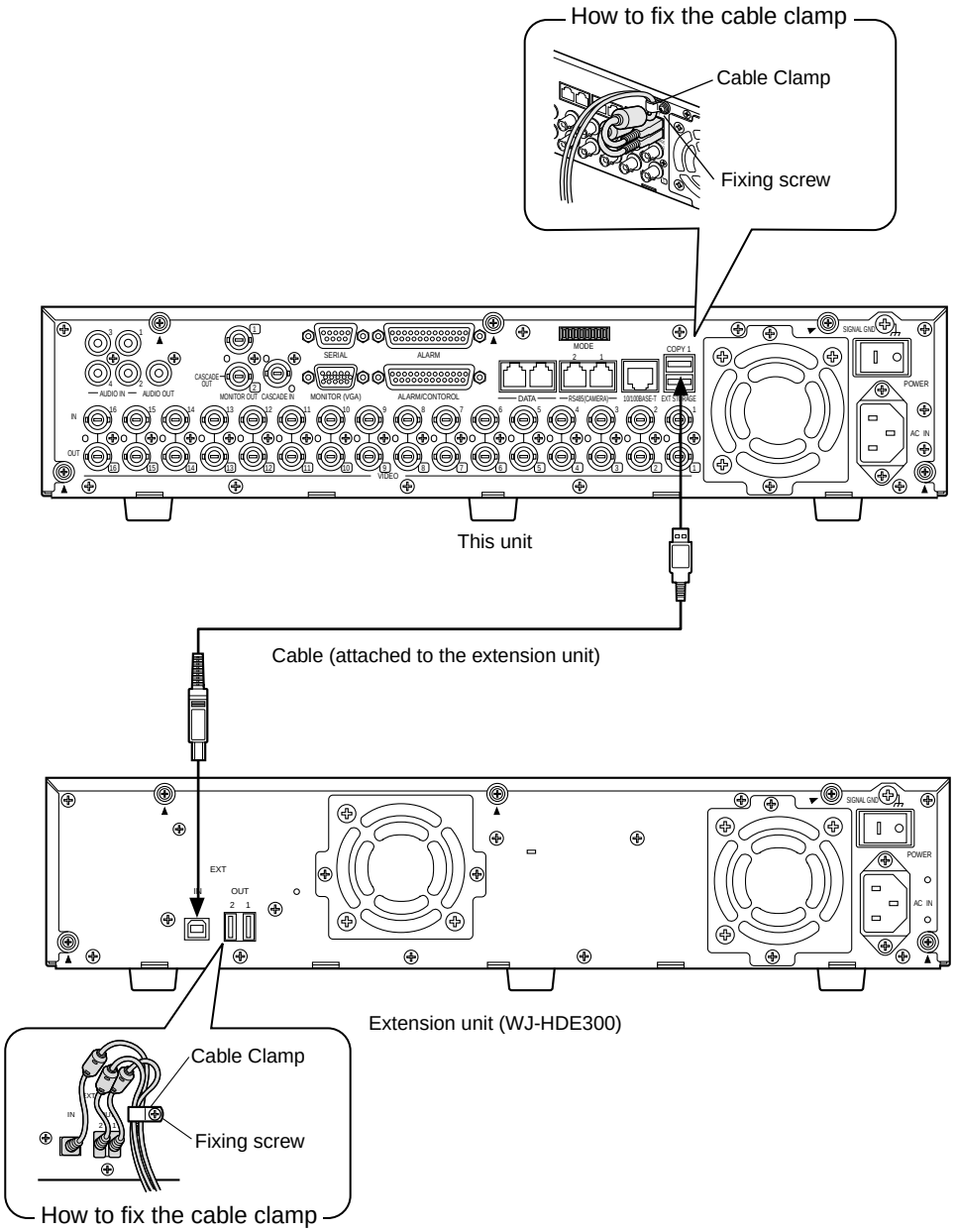


■ Connections with an extension unit:

An example of connections is shown below when the unit is used together with an extension unit.
This unit can be connected with up to seven extension units.
Connect the EXT IN port on the rear panel of the extension unit and the EXT STORAGE port on the rear panel of this unit using the cable provided with the extension unit.

Important:

- Use the cable provided with the extension unit.
- Fix the cables with the cable clamp (provided with each unit) to prevent disconnection or unstable connection that may cause the failure of recording or the unstable system.

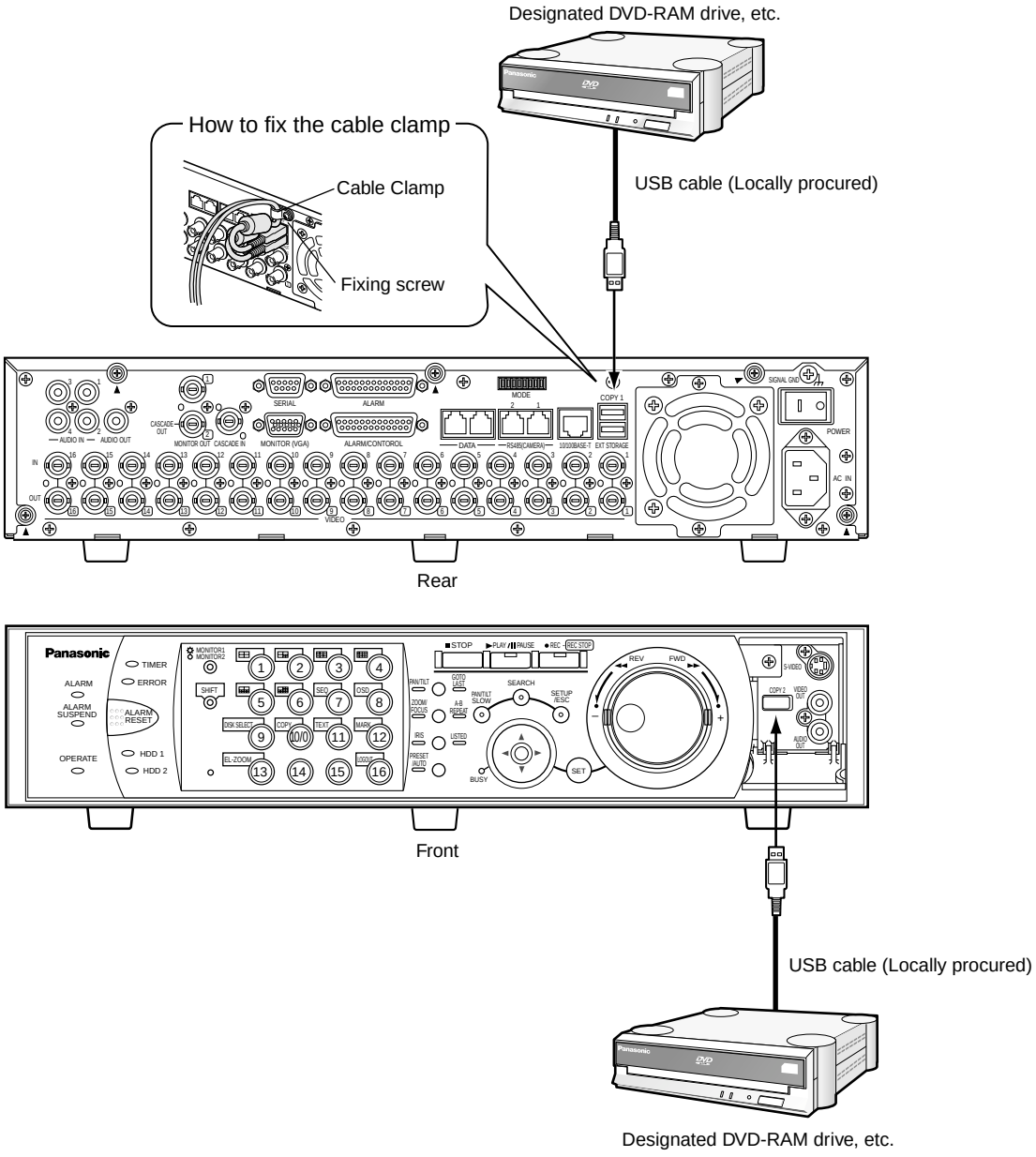


■ Connections with DVD-RAM, CD-R, and DVD-R drives

This is an example of connection when the unit is used together with the designated DVD-RAM, DVD-R and CD-R drive.
Connect the designated DVD-RAM, DVD-R and CD-R drive and the COPY1 port on the rear panel or the COPY2 port inside the connectors cover on the front panel of this unit using an USB cable (locally procured).

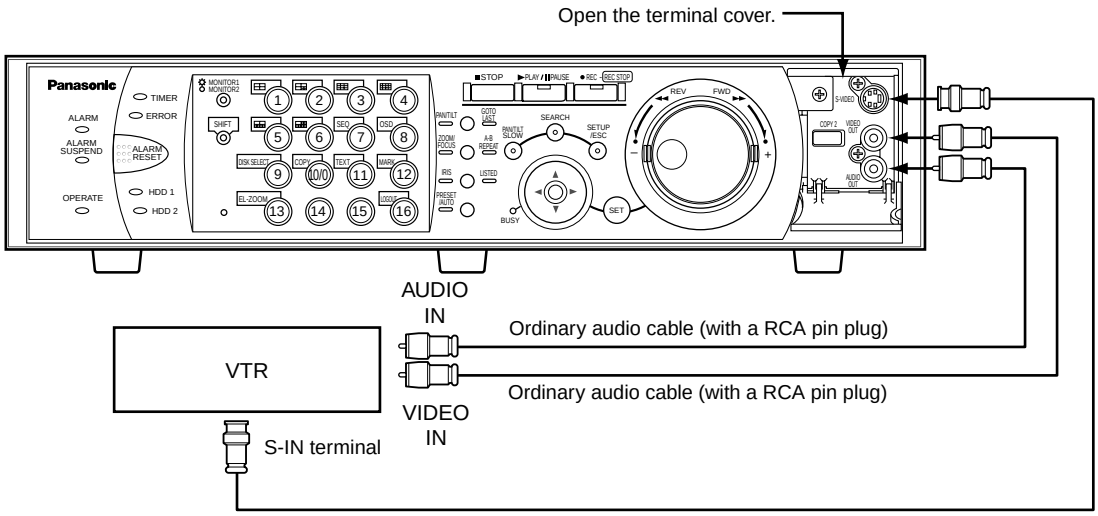
Important:

- Use an appropriate USB cable compatible with USB2.0 standard.
- Fix the cables with the cable clamp (provided with this unit) to prevent disconnection or unstable connection that may cause the failure of recording or the unstable system.



■ Connections with the VCR

When it is necessary to copy the recorded images to a video tape using a VCR, connect the VCR to the S-VIDEO connector (or the VIDEO OUT connector) and the AUDIO OUT connector inside the connectors cover on the front panel of this unit as below.



Note: The same video signal supplied to the MONITOR1 connector and to the MONITOR (VGA) connector will be supplied to the S-VIDEO connector and the VIDEO OUT connector inside the connectors cover.

The same audio signal supplied to the AUDIO OUT connector on the rear panel of this unit will be supplied to the AUDIO OUT connector inside the connectors cover on the front panel.

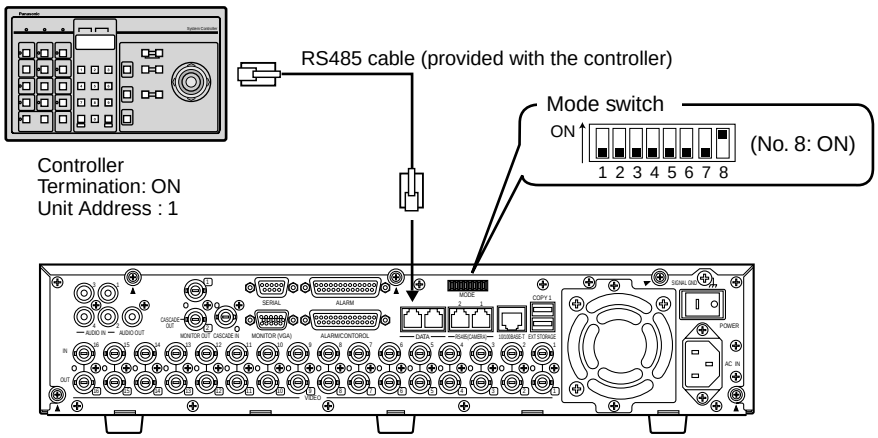
■ Connections with PS·Data systems

This is an example of connection when the unit is used together with the PS·Data devices.
If a connected system controller is PS·Data compatible, it is possible to operate this unit or connected devices using the system controller.
Use the RS485 cable provided with the system controller.

Important:

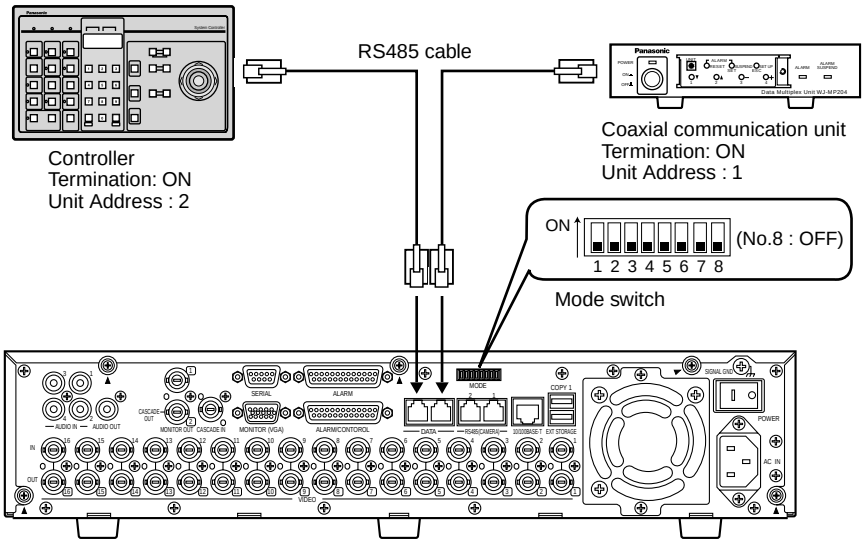
- Terminate the both devices on the both ends of the connection. Refer to the respective operating instructions for the descriptions of how to terminate. Termination of this unit can be set with the mode switch on the rear panel. (See below.)
- When connecting a PS·Data compatible device, it is necessary to set each item of "PS·Data Setup" of "Com" on the SETUP MENU according to the system configuration.
- The PS·Data is our exclusive protocol. Contact dealer about devices can be connected.

● When this unit is installed between the controller and the system device (when this unit is used as a receiver)

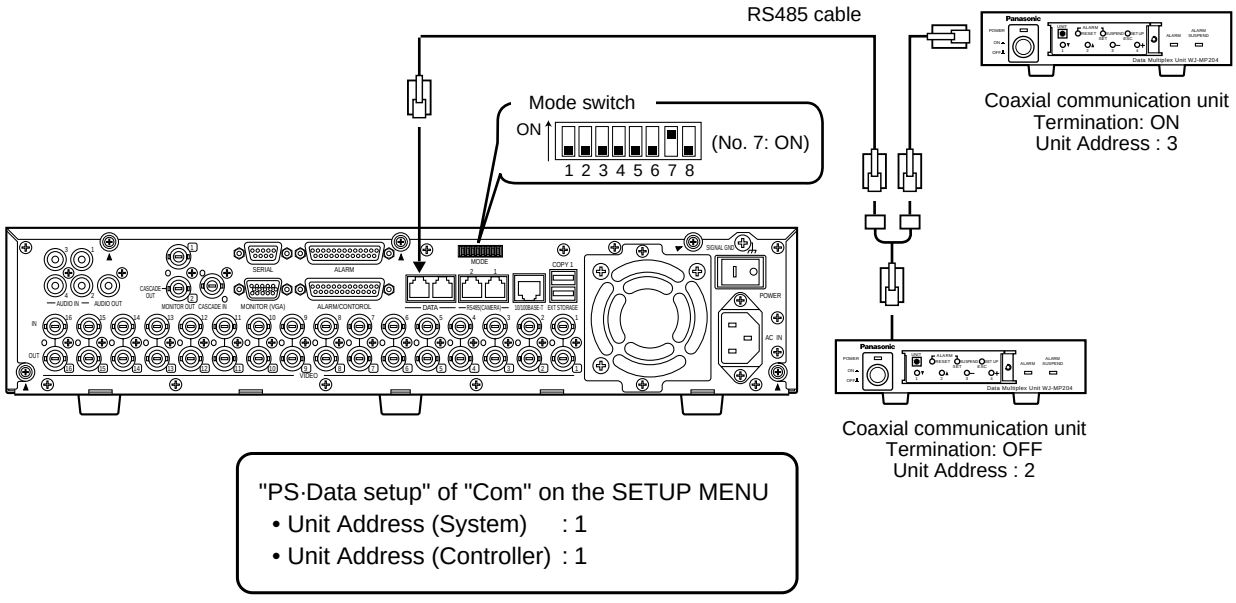


"PS·Data setup" of "Com" on the SETUP MENU
- Unit Address (System) : 1
- Unit Address (Controller) : 2

● When this unit is connected with the system device (when this unit is used as a controller)



"PS·Data setup" of "Com" on the SETUP MENU
- Unit Address (System) : 1
- Unit Address (Controller) : 2



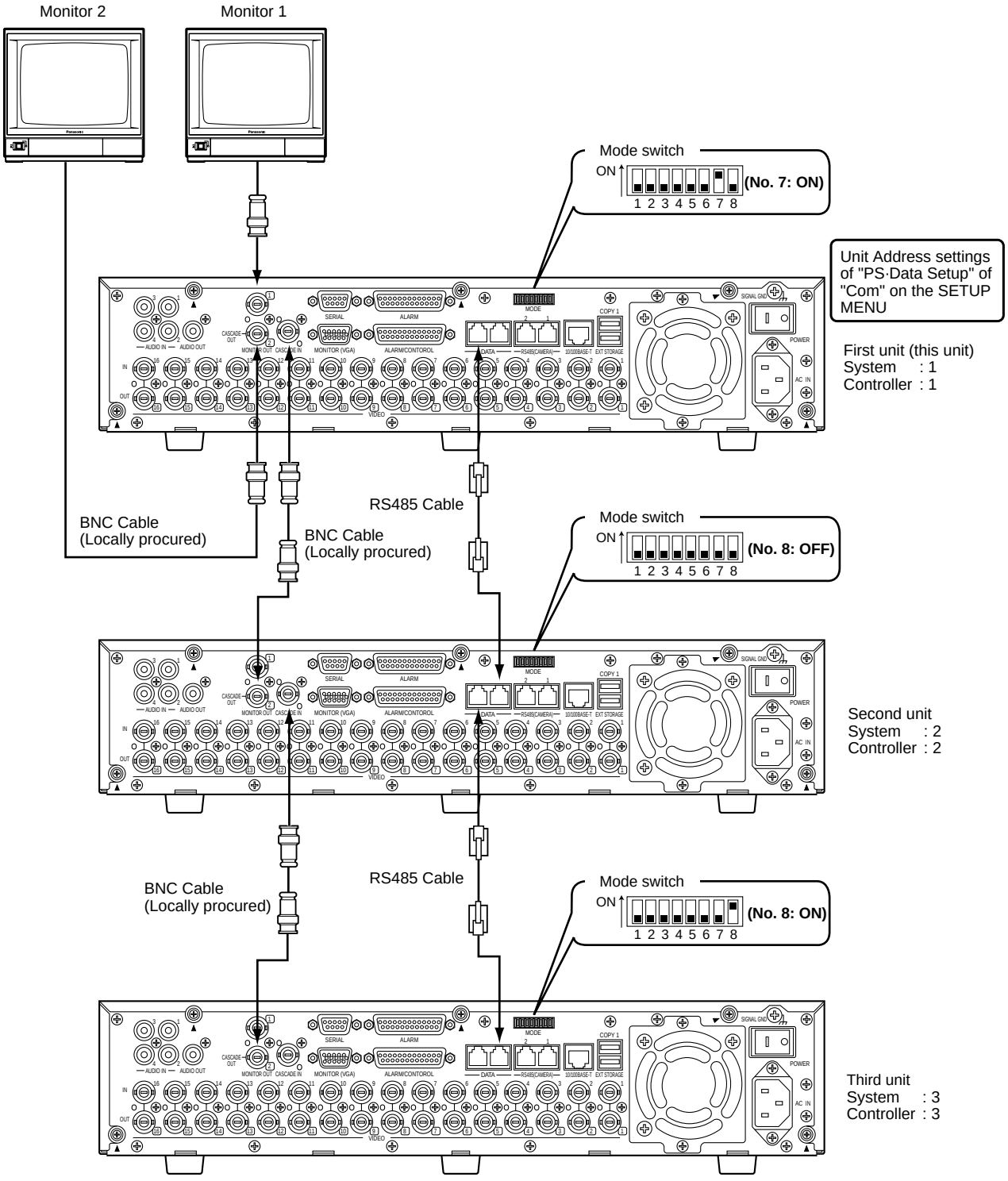
"PS·Data setup" of "Com" on the SETUP MENU
- Unit Address (System) : 1
- Unit Address (Controller) : 1

■ Cascade connection of multiple units

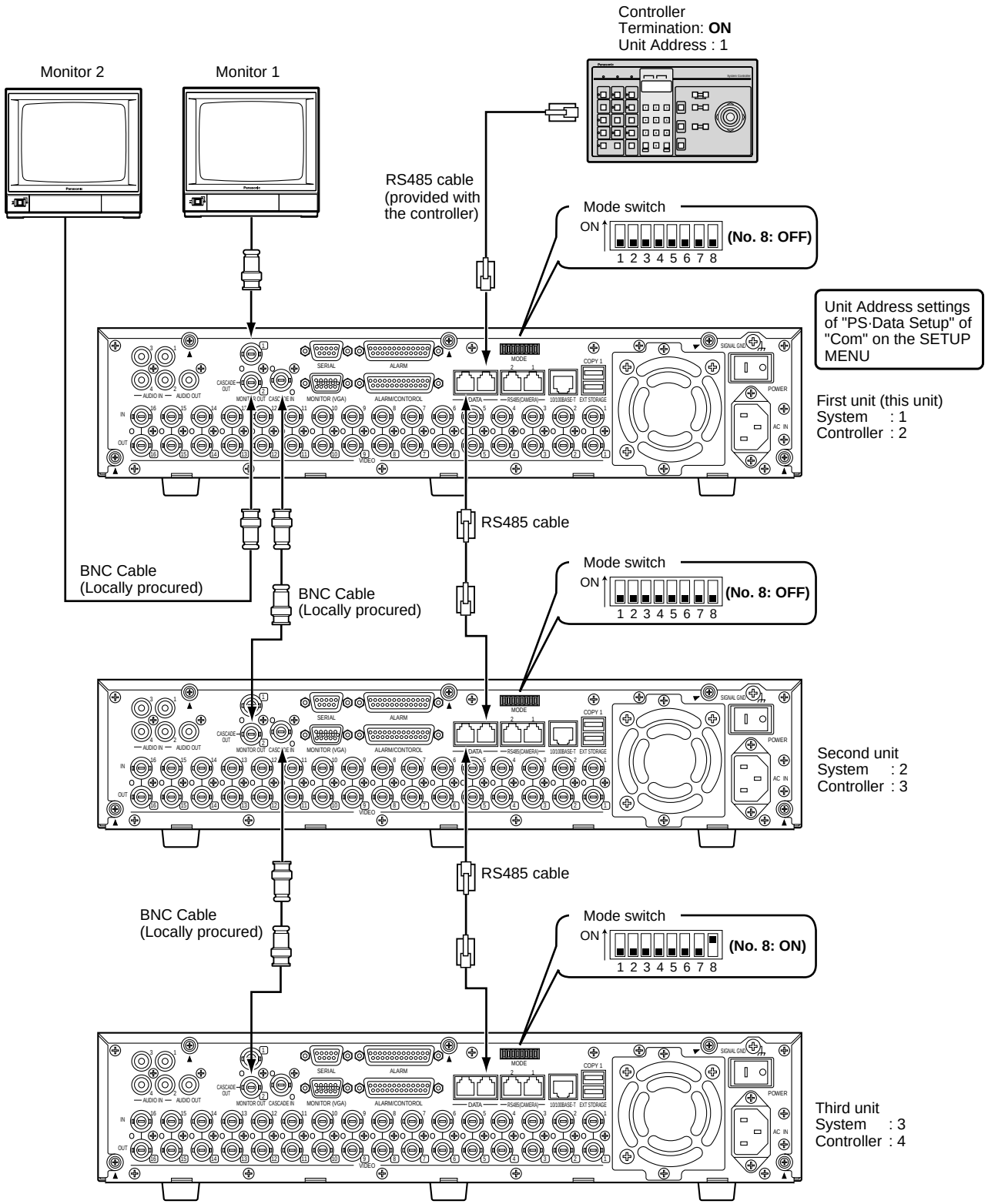
Up to of four units can be connected.
For the cascade connection, connect the CASCADE IN connector and the CASCADE OUT connector on the rear panel of each unit as below.

Important:
When connecting the unit in the cascade connection, set "Cascade" of "PS·Data Setup" in "Com" on the SETUP MENU to "ON". (Page xx)

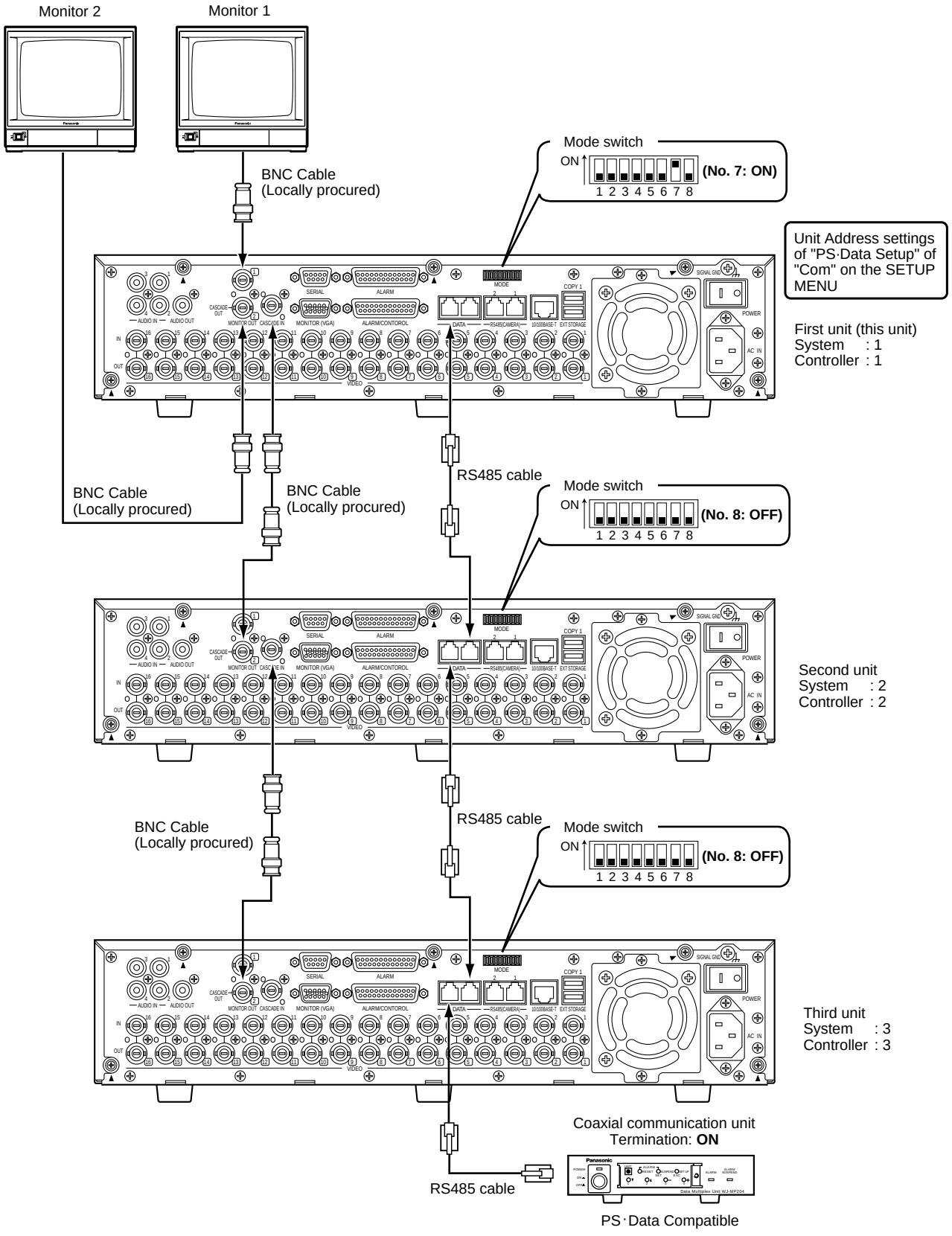
● When no PS·Data compatible device is connected to the system



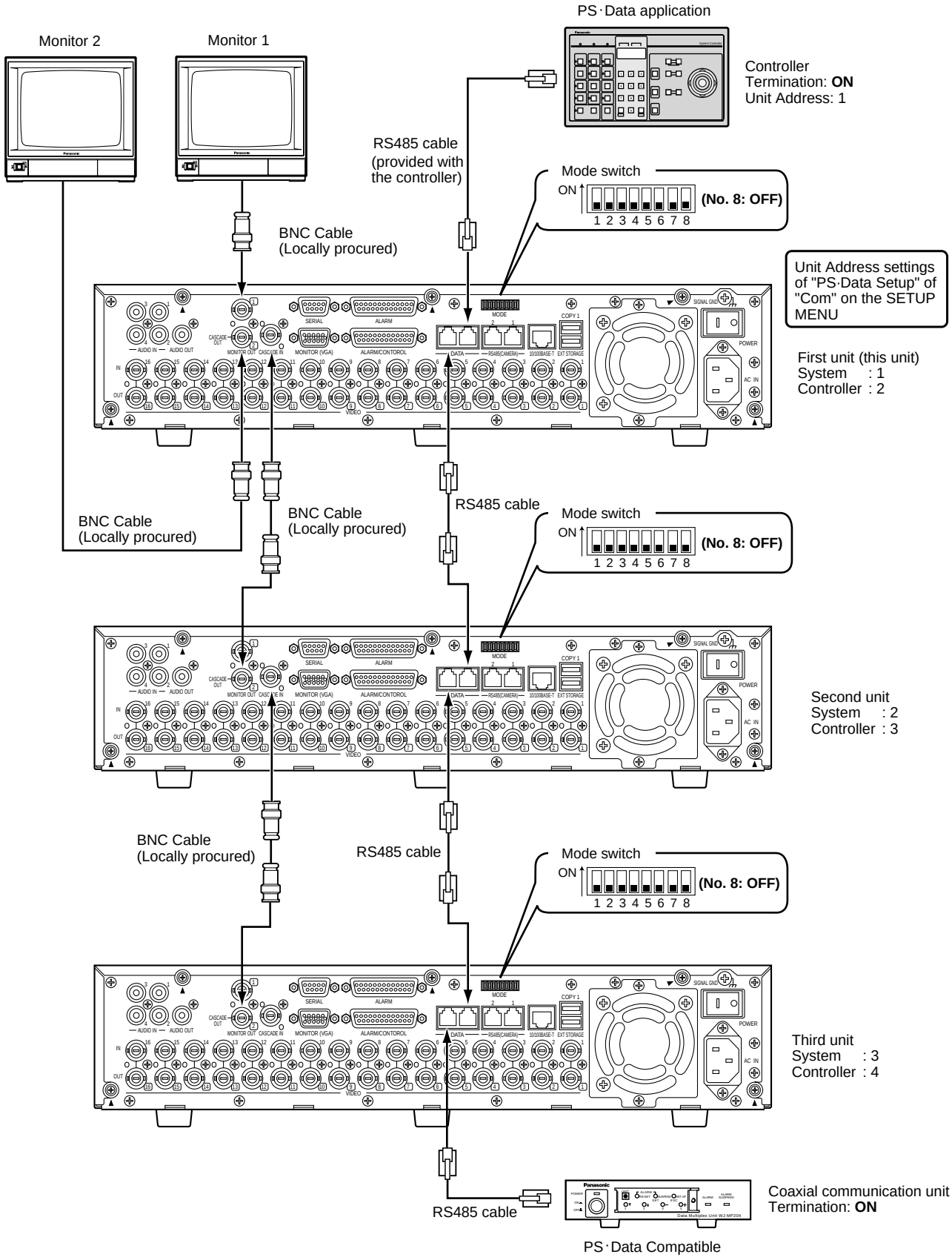
● When the PS·Data compatible device is connected to the first unit (when this unit is used as a receiver)



● When the PS·Data compatible device is connected to the third unit (when this unit is used as a receiver)



When the PS·Data compatible devices are connected to the first and third units (when this unit is used as a receiver)



■ Connection with the RS485 camera

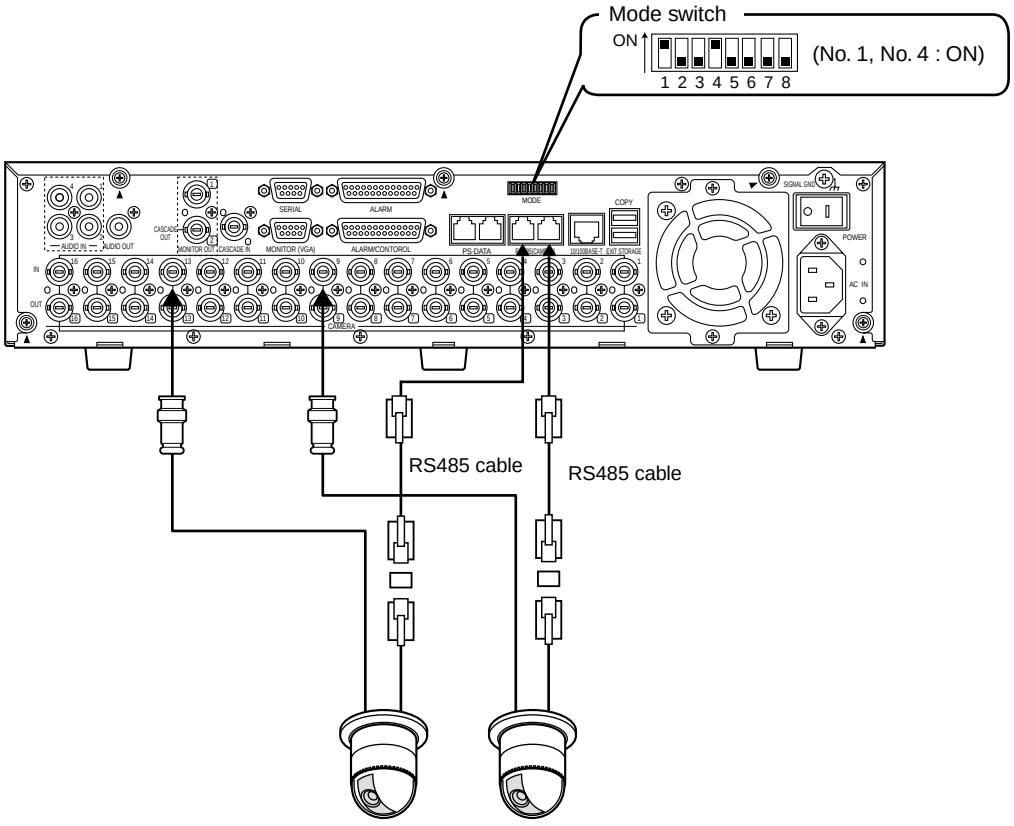
This is an example of connection when the unit is used together with the RS485 devices.
Up to eight cameras can be connected using a single RS485 (CAMERA) port.

Important:

- Terminate the both devices on the both ends of the connection. Refer to the respective operating instructions for the descriptions of how to terminate. Termination of this unit can be set with the mode switch on the rear panel.
- When connecting an RS485 camera, it is necessary to set each item of "RS485 Setup" of "Com" on the SETUP MENU according to the RS485 settings of the camera. (Refer to page xx.)
- The total length of the RS485 cable from this unit is 1 200 meters at the maximum.

● 1:1 connection

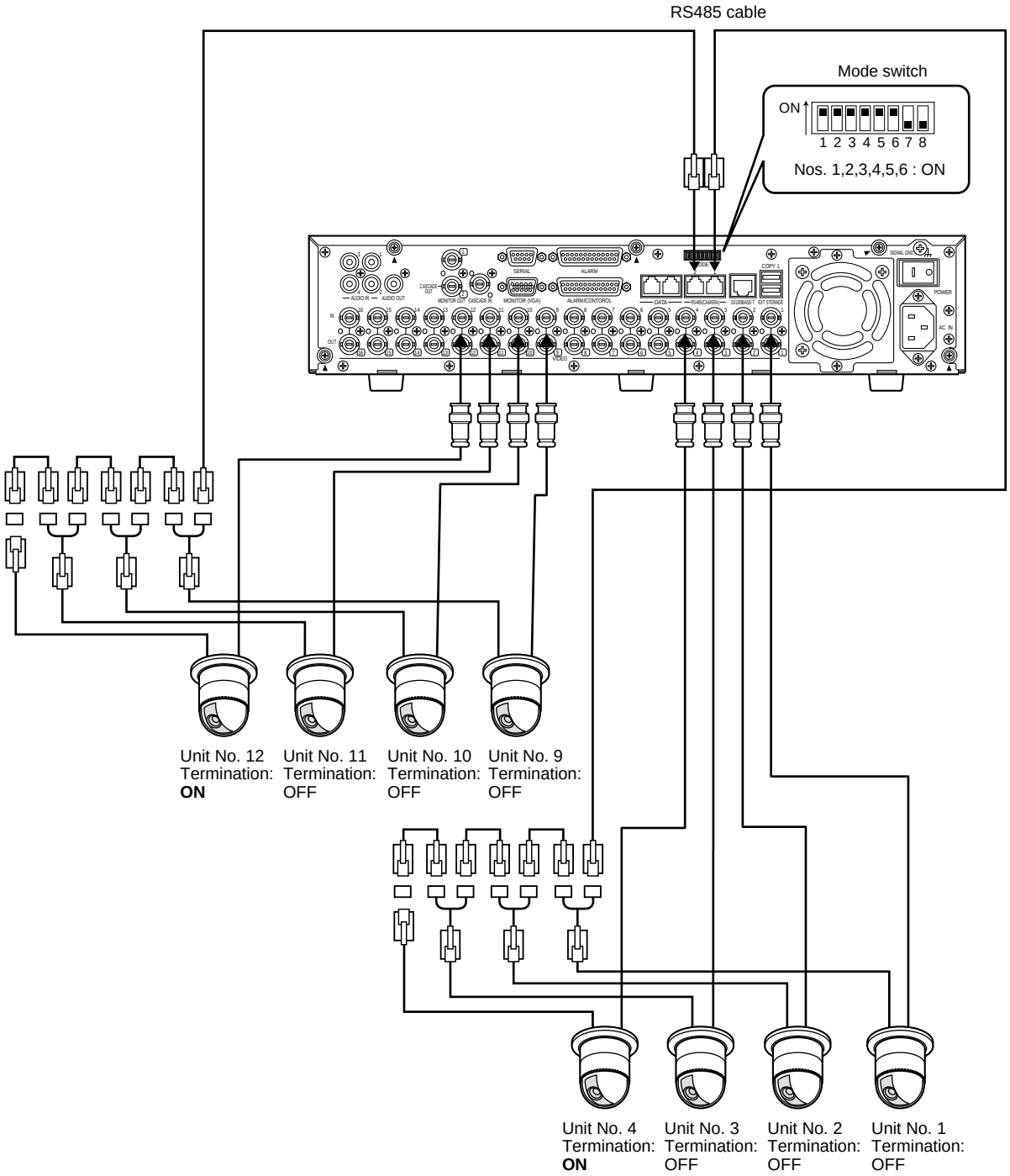
Connect a camera to the RS485 (CAMERA) port.
Example: When the RS485 cameras are connected to the CAMERA IN connectors 9 and 13:



Connect the RS485 camera to	Switches required to be set	4-wire communication	2-wire communication
RS485 (1)	No.2 No.3	OFF OFF	ON ON
RS485 (2)	No.5 No.6	OFF OFF	ON ON

● Daisy connection

Multiple cameras can be connected to the RS485 (CAMERA) port.
Example: When the cameras 1 - 4 are connected to one of the RS485 (CAMERA) port and the cameras 9 - 12 are connected to the other RS485 (CAMERA) port.



Connect the RS485 camera to	Switches required to be set	4-wire communication	2-wire communication
RS485 (1)	No.2 No.3	OFF OFF	ON ON
RS485 (2)	No.5 No.6	OFF OFF	ON ON

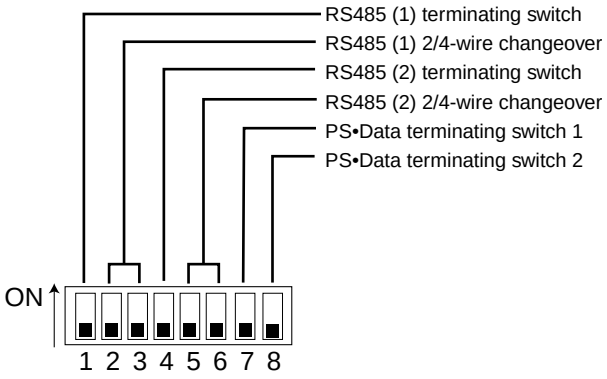
■ Mode Switch

RS485 interface is used to communicate between this unit and the PS·Data compatible system device ,. In this case, it is required to terminate the both devices on the both ends of the RS485 connection.
The settings of the mode switch will be different whether this unit is used as a receiver or a controller.
When an RS 485 camera is connected to this unit, it is required to terminate the both devices on the both ends of the connection.

- **When connecting this unit with the system controller and this unit is installed at the end of the PS·Data connection**
  PS·Data termination switch 1: ON

- **When connecting a system device and this unit is installed at the end of the PS·Data connection**
  PS·Data terminating switch 2: ON

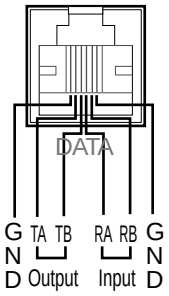
- **When connecting RS485 cameras**
  Set the termination switch of the connected RS485 (CAMERA) port to ON.
  Connected to the RS485 (CAMERA) port 1: Set the RS485 (1) termination switch to ON.
  Connected to the RS485 (CAMERA) port 2: Set the RS485 (2) termination switch to ON.


RS485 (1) terminating switch
RS485 (1) 2/4-wire changeover
RS485 (2) terminating switch
RS485 (2) 2/4-wire changeover
PS•Data terminating switch 1
PS•Data terminating switch 2
ON
1 2 3 4 5 6 7 8

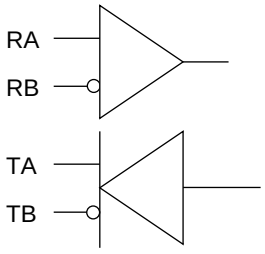
- **For 2W communication**
  Connected to the RS485 (CAMERA) port 1: Set the switch No.2 and No.3 to ON.
  Connected to the RS485 (CAMERA) port 2: Set the switch No.5 and No.6 to ON.

- **For 4W communication**
  Connected to the RS485 (CAMERA) port 1: Set the switch No.2 and No.3 to OFF.
  Connected to the RS485 (CAMERA) port 2: Set the switch No.5 and No.6 to OFF.

■ RS485 Port



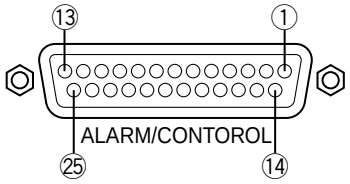
Internal block diagram



■ How to Use the Alarm/Control Terminals

These terminals are used for emergency recording, auto time adjustment (Auto Adjust Time), taking measures against power outages (Shutdown Time), and when installing a buzzer, a lamp, and such an alarming device. They are also used to synchronize with the sequential display changeover.

The terminal pin array and connections are exemplified below. The connector to be used should be manufactured according to the pin array.

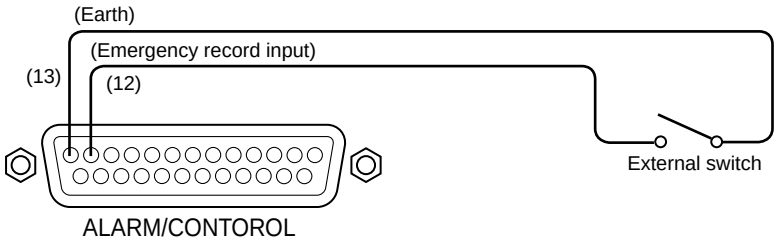


Pin array

Pin No.	Pin No.	Operation	Remarks
1	Ch 8 alarm output	Alarm signal output at an event occurrence	Open collector output 24 V max., 100 mA
2	Ch 9 alarm output		
3	Ch 10 alarm output		
4	Ch 11 alarm output		
5	Ch 12 alarm output		
6	Ch 13 alarm output		
7	Ch 14 alarm output		
8	Ch 15 alarm output		
9	Ch 16 alarm output		
10	NC		
11	Alarm display reset input	Canceling the alarm display	Non-voltage make contact input –100 mA, 5 V pull-up
12	Emergency recording input	Starting emergency recording disk space a signal input	
13, 14	Earth (Grounding)		
15	Alarm output for available disk space of device connected to copy port	Generation of signal output for disk space alarming of DVD-RAM, DVD-R, CD-R	Open collector output 24 V max., 100 mA
16	HDD error output	Signal output upon detection of HDD error	
17	Camera error output	Signal output upon detection of camera error	
18	Error output	Signal output upon detection of unit error	
19	End of outage processing	Signal output upon completion of outage processing	High (+12V)
20	Time adjustment I/O	Time of this unit is adjusted to the preset time according to the signal input. This signal output is then generated for the setting time of this unit. Time of all other units is adjusted to the setting time of this unit.	30 kΩ 5 V pull-up, –100mA/make contact
21	Sequence changeover I/O	Sequence changeover is effected according to the signal input. Signal output is generated at the time of sequence changeover.	
22	Alarm suspension input	The state of alarm suspension is assumed according to the signal input.	
23	Outage detection I/O	Start of outage processing according to the signal input.	Non-voltage make contact input –100 mA/5 V pull-up
24	External recording mode changeover	Changeover to the external recording mode	
25	+5V output	+5V output	200 mA max.

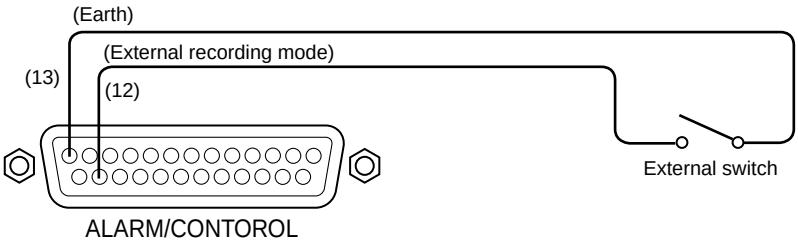
● Connection for emergency recording

When the external switch is turned ON, emergency recording will be started.
Resolution, recording time, recording rate and quality for emergency recording can differ according to the settings of "Emergency REC" in "Recording" of the SETUP MENU. (Refer to page xx.)



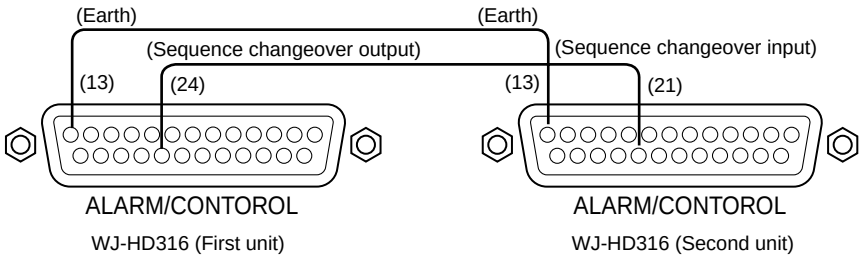
● Connection for external recording changeover

When the external switch is turned ON, recording program changeover is effected for recording.
The recording program can be set for "External Recording Mode" with the "Time Table" in "Schedule" of the SETUP MENU. (Refer to page xx.)



● Connection to synchronize the sequential display changeover (when multiple units are used)

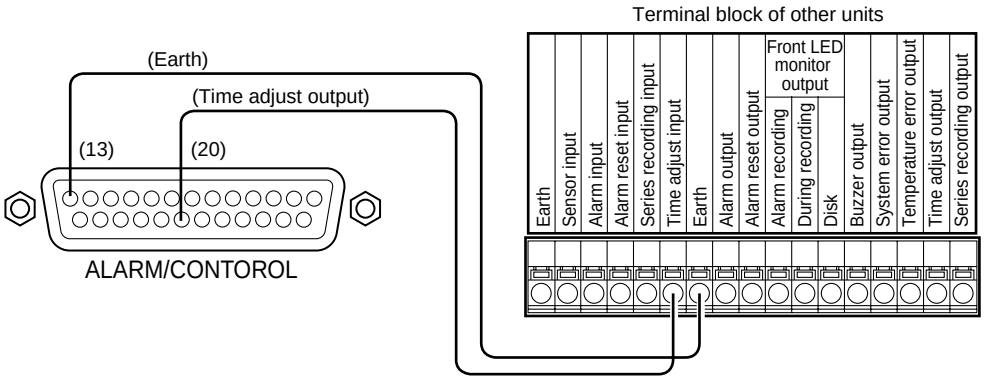
Sequential display changeover is effected with the timing of supplying signals to the sequence changeover input terminal. When multiple units are used, the sequence timing can be synchronized.
Setting for the sequence timing can be set with "Sequence Timing" in the "Switcher" of the SETUP MENU. (Refer to page xx.)
For the synchronization of the sequence timing between multiple units, there is difference in the sequence timing setting as shown below between the synchronized side (Master) and the synchronizing side (Slave).
Synchronized side (Master): Set at "INT" (functioning as an output terminal)
Synchronizing side (Slave): Set at "EXT" (functioning as an input terminal)



● Connection for the Auto Time Adjust function

• When "AutoTime Adjust" of "System" on the SETUP MENU is set to "MASTER"

"Time Adjust Output" becomes available and the clock of this unit can be applied to other units.

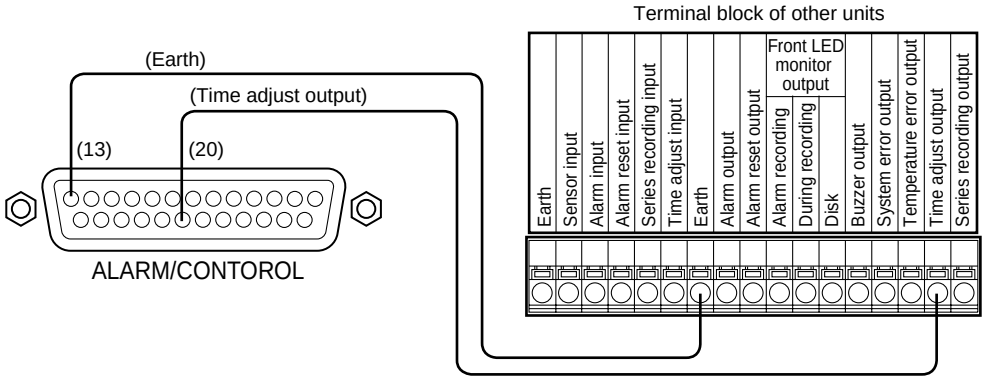


• When "Auto Time Adjust" of "System"on the SETUP MENU is set to "SLAVE"

"Time Adjust Input" becomes available. When a signal output from other equipment is supplied to the time adjust I/O terminals between 00 minutes 00 seconds and 14 minutes 59 seconds every hour or between 45 minutes 00 seconds and 59 minutes 59 seconds every hour, the clock will be set to "00 minutes 00 seconds" of the closest hour .

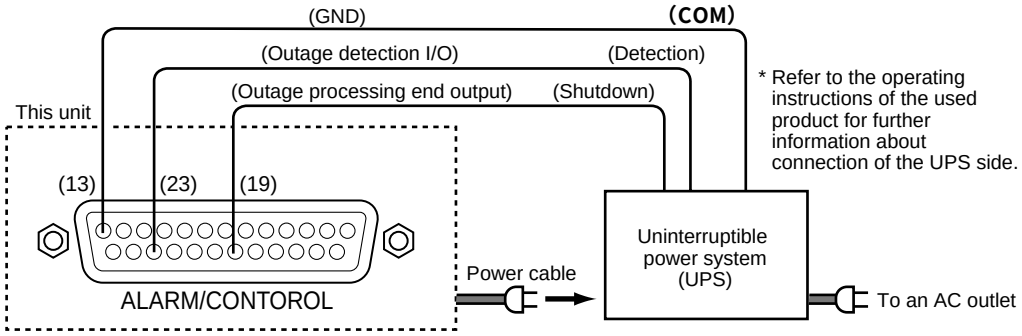
Example:

Signal is supplied at 2:50:00 (hour:minute:second)pm → Set at 3:00:00 pmM
Signal input supplied at 3:14:45 pm → Set at 3:00:00 pm
Signal issupplied at 3:20:00 pm → Time will not be adjusted.



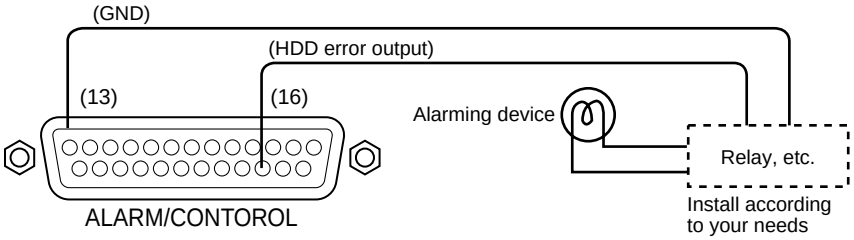
● Connection with the Uninterruptible Power System (UPS)

This is an example of connection with the uninterruptible power system (UPS) to be installed to protect from the power outage. When a signal is supplied to the outage detection I/O terminals from the uninterruptible power system (UPS), internal processing will be started to shut off the power supply for this unit.
After completing the internal processing, a signal will be supplied from the outage processing end output terminal to the uninterruptible power system (UPS). Then, the power supply to this unit can be suspended.



● Connection of the control output

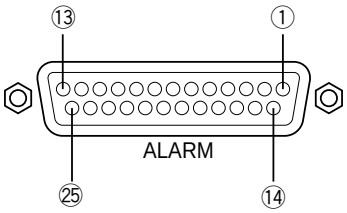
- When an alarming device such as a buzzer or a lamp is connected, the signal output from Pin Nos. 15 - 18 can be used to notify the status by sounding a buzzer or lighting a lamp.
- The following example is connection with the HDD error output (pin no. 16).



■ How to Use the Alarm Terminals

These terminals are used to connect the alarming devices, such as sensors, door switches, etc.
The pin array of these terminals are as shown below. The connector to be used should be manufactured according to the pin array.

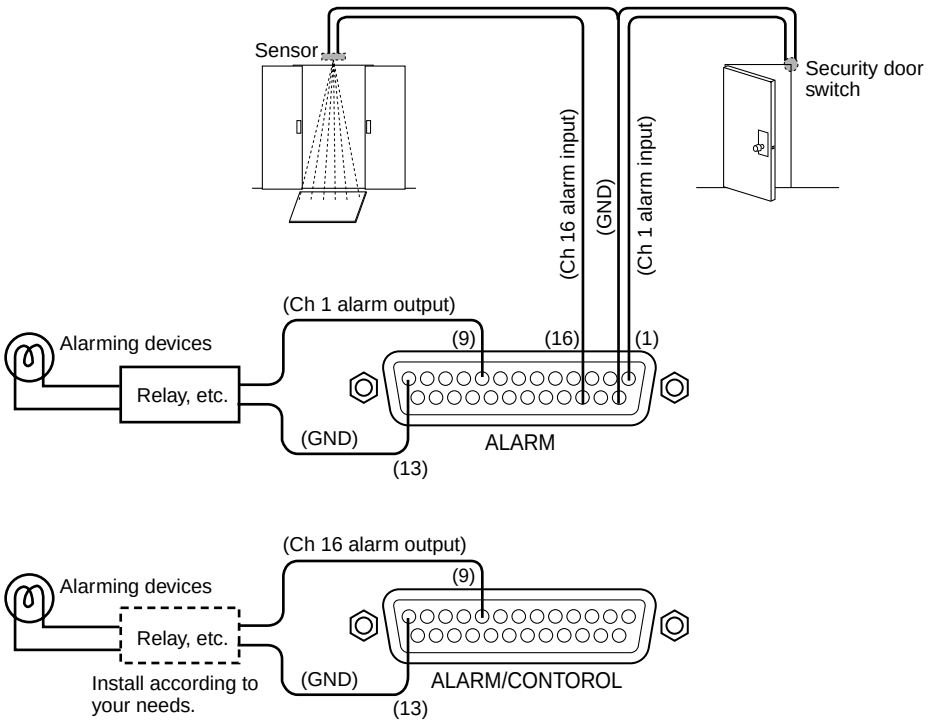
Pin Array



Pin No.	Pin No.	Operation	Remarks
1	Ch 1 alarm input	Event action will be performed according to the settings.	Non-voltage make contact/–100 mA, 5 V pull-up
2	Ch 2 alarm input		
3	Ch 3 alarm input		
4	Ch 4 alarm input		
5	Ch 5 alarm input		
6	Ch 6 alarm input		
7	Ch 7 alarm input		
8	Ch 8 alarm input		
9	Ch 1 alarm output	Alarm signal will be supplied at an event occurrence	Open collector output/24 V, 100 mA
10	Ch 2 alarm output		
11	Ch 3 alarm output		
12	Ch 4 alarm output		
13, 14	Earth (Grounding)		
15	Ch 9 alarm input	Event action will be performed according to the setting.	Non-voltage make contact input/ –100 mA, 5 V pull-up
16	Ch 10 alarm input		
17	Ch 11 alarm input		
18	Ch 12 alarm input		
19	Ch 13 alarm input		
20	Ch 14 alarm input		
21	Ch 15 alarm input		
22	Ch 16 alarm input		
23	Ch 5 alarm output	Alarm signal will be supplied at an event occurrence	Open collector output/24 V max., 100 mA
24	Ch 6 alarm output		
25	Ch 7 alarm output		

● Alarm connection

When a signal is supplied to the alarm input terminals ofCH 1 16, recording and displaying camera images will be performed according to the settings.
When an alarming device such as a buzzer, a lamp, etc., is installed outside, connect them to the alarm output terminals (pin nos. 9 - 12, pin nos. 23 - 25) or to the alarm output terminals (pin nos. 1 - 9) of the ALARM/CONTROL terminal.



Time and polarities of the ALARM/CONTROL terminal and the ALARM terminal

Terminal	**Active time**	**Note**
Alarm input	100 ms or more	N.O.: L active N.C.: H active
Alarm output	The set time on the SETUP MENU	L active
Alarm reset input	100 ms or more	L active
Emergency recording input	100 ms or more	L active
Alarm output for available disk space of device connected to the copy port	While the size of the available disk space is less than the set size	L active
HDD error output	Until the HDD error is cleared	L active
Camera error output	Until the camera error is cleared	L active
Error output	Until the error is cleared	L active
Outage processing end output	100 ms	H active
Time adjust I/O	Input: 100 ms or more Output: 1 s	L active
Sequence changeover output	100 ms or more	L active
Outage detection output	100 ms or more	L active
External recording mode changeover	100 ms or more	L active, judged by level
Alarm suspend output	100 ms or more	L active, judged by level

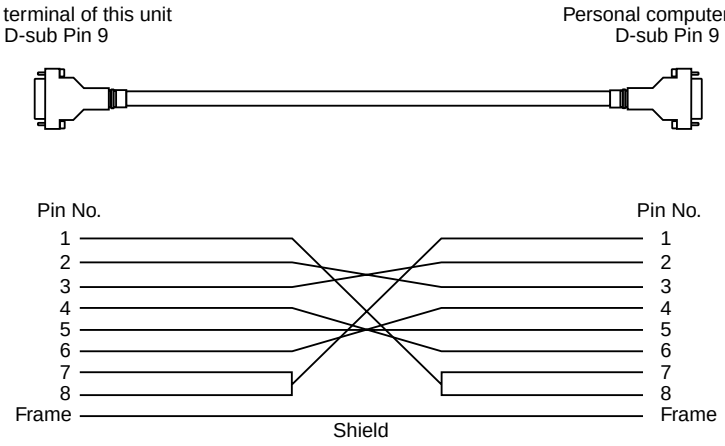
■ How to Use the Serial Terminal

This terminal is compliant with the RS232C Standard, and is used to communicate with a connected PC.
Connection example and the pin array of the SERIAL terminal are as shown below.

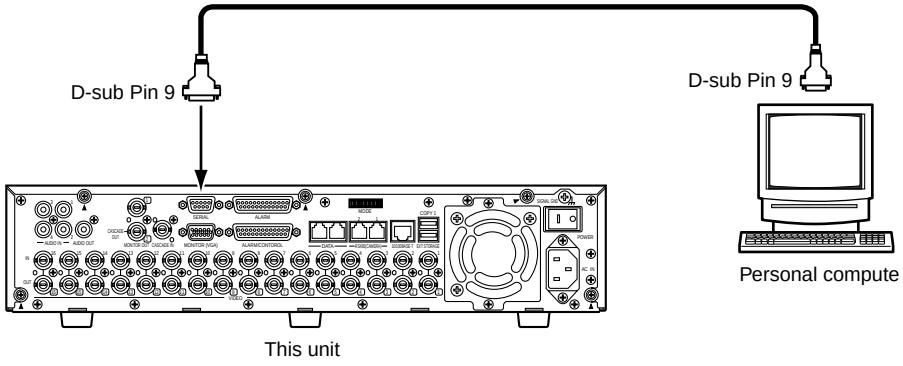
Important

- When using the SERIAL terminal, it is necessary to perform the settings with "RS232C Settup" of "Com" on the SETUP MENU for the communication functions. (Page XX)

● Pin Array



● Connection example



SETUP

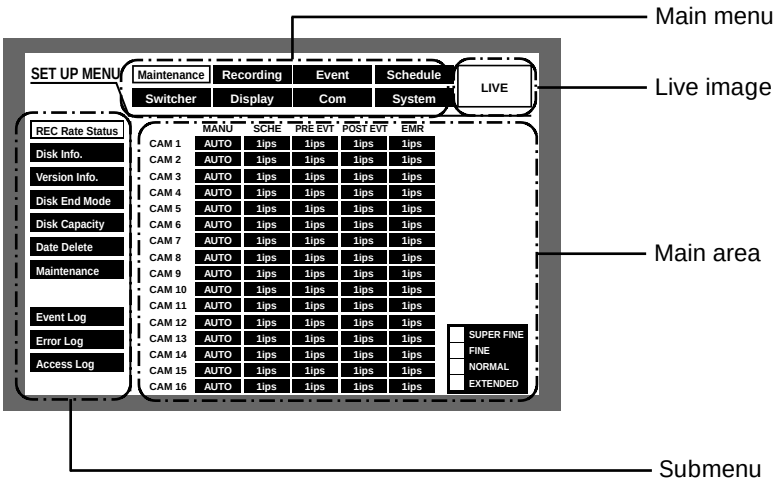
To operating this unit, it is necessary to set each item of the SETUP MENU in advance.
Perform the settings for each item of the SETUP MENU by displaying the SETUP MENU on the monitor 2.
Settings item are as below.

■ Item list of the SETUP MENU

Setting menu		Description	Page
Maintenance			n
	REC Rate Status	Display the recording rate in each recording mode and image quality for each camera channel in list form.	n
	Disk Info.	Display hard disk information such as available disk space of the built-in hard disk and the connected extension unit.	
	Version Info.	Display version information of the software and the hardware and the MAC address.	
	Disk End Mode	Set actions to be taken when available space of the built-in hard disk or of the connected extension unit reaches a specified level.	
	Disk Capacity	Set to display warning when available space of the built-in hard disk of the connected extension unit reaches a specified level.	
	Data Delete	Delete data stored in the hard disk, or format (initialize) DVD-RAM disk connected to the COPY port.	
	Maintenance	Activate the disk maintenance mode. Enter in this mode when replacing the hard disk.	
	Event Log	Display the event log. Refer to page xx for further information.	
	Error Log	Display the error log such as a HDD error log.	
	Access Log	Display the time, user name and IP addresses when logging in/out to/from this unit.	
Recording			
	REC Setup	Perform the basic settings for recording.	
	Emergency REC	Perform the settings for emergency recording such as recording time and recording rate.	
Event			
	Event Setup	Perform the settings of the alarm output duration and the buzzer sounding when an event (motion detection, video loss, command/terminal alarm) occurs.	
	VMD Setup	Perform the settings of the motion detection area, sensitivity and the detection mode for each camera channel.	
	Alarm Setup	Perform the settings of the alarm display duration and alarm suspension duration.	
	Terminal Setup	Specify the alarm terminal polarity.	
Schedule			
	Time Table	Create timetables for each day of the week, and assign the recording action programs and event action programs to the created timetables.	
	REC Prog	Up to 4 recording programs can be created. Perform the settings for the recording actions for each program such as image quality and recording rate for each camera channel.	
	EEvent Prog	Up to 4 event programs can be created. Perform the settings for each program such as the event action and the auto copy function for each event type.	
	Special Days	Assign timetables independently as the special days aside from other days.	

Setting menu		Description	Page
Switcher			n
	Monitor1	Perform the settings for the image switching on the monitor 1 such as the setting of the sequential display or the screen to be displayed at login on the monitor 1.	n
	Monitor 2	Monitor2 Perform the settings for the image switching on the monitor 2 such as the setting of the sequential display or the screen to be displayed at login on the monitor 2 can be set.	
Display			
	OSD Setup	Perform the display settings such as the settings for the display position of the camera title and the time.	
	Monitor1	Perform the display settings for the monitor 1 such as the camera title display on/off, the alarm display on/off and the time display on/off.	
	Monitor2	Perform the display settings for the monitor 2 such as the task bar style, the camera title display position, and the camera title display on/off.	
Com			
	Camera Control	Set the communication type to control cameras for each camera channel.	
	PS.Data Setup	Perform the settings for the PSÅEData. It is necessary to perform these settings when connecting an external device such as a controller to the DATA port on the rear panel of this unit.	
	RS485Setup	Perform the settings for the RS485. It is necessary to perform these settings when connecting an RS 485 compatible camera to the RS485 (CAMERA) port on the rear panel of this unit.	
	RS232C Setup	Perform the settings for the SERIAL (RS232C). It is necessary to perform these settings when connecting a PC to the SERIAL connector on the rear panel of this unit.	
	NW Setup 1	Perform the basic network settings. It is necessary to perform these settings when operating this unit via a network such as LAN. The settings for the user authentication and the host authentication also can be set with these settings.	
	NW Setup 2	Perform the network connection settings such as IP addresses and the gateway address. It is necessary to perform these settings when operating this unit via a network such as LAN.	
	NTP Setup	Perform the NTP server settings such as the NTP server address and the time zone setting. It is necessary to set to synchronize the clock with the NTP server.	
System			
	Basic Setup	Perform the settings for the basic operation of this unit.	
	Time & Date	Perform the settings for the time adjustment and display of time and date.	
	User Regist.	Perform the settings for the user registration and the user authentication such as user name, password and operational level.	
	User Edit	Edit the registered user information.	
	User Delete	Delete registered users.	
	Host Regist.	Register the hosts (PCs access this unit via a network) with their information such as IP address and operational level for the host authentication.	
	Host Edit	Edit the registered hosts.	
	Host Delete	Delete the registered hosts.	
	User Level	Perform the settings to specify operable functions in each level.	
	Save/Load	The set contents can be saved or loaded.	

■ About the SETUP MENU



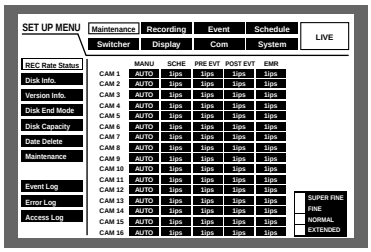
Main menu: These menus are always being displayed on the SETUP MENU.
Live image: Live image from the camera channel that was selected just before the SETUP MENU had displayed.
Main area: The setting items of the selected submenu will be displayed in this area.
Submenu: The submenu of the selected main menu will be displayed on the left side of the SETUP MENU. The submenus are different depending on the selected main menu.

■ Basic Operation with the SETUP MENU

z Press the SETUP/ESC button for 2 seconds or more when displaying live images.

[Screenshot 1]

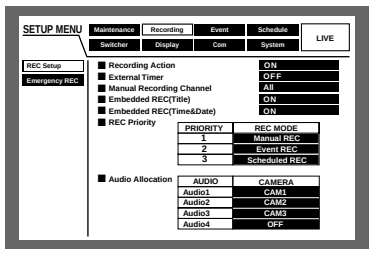
The top page of the SETUP MENU will be displayed.



x Select a main menu using the arrows button and press the SET button.

[Screenshot 2]

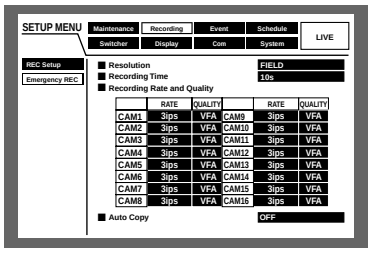
The submenu of the selected main menu will be displayed.



c Select the submenu using the arrows button (D C) and the press the SET button.
When selecting the submenu by the cursor is enabled, press the SETUP/ESC button. The main menu will be enabled to select.

[Screenshot 3]

The setting items will be displayed in the main area and the cursor will move to a setting item.



v Perform the settings for each setting item.

Item selection: Move the cursor using the arrows button (A B D C).

Change the setting: Rotate the jog dial.

Pop-up display of the setting item: Press the SET button when the setting item to has the "SETUP" button next to the setting item name.

Turning pages of the settings menu: When "PREV/NEXT PAGE" is displayed on the bottom of the settings menu, move the cursor to the "PREV/NEXT PAGE" using the arrows button, and then use the arrows button (A B) to turn the pages.

Selecting a submenu again: Press the SET button. The cursor will be able to select a submenu again.

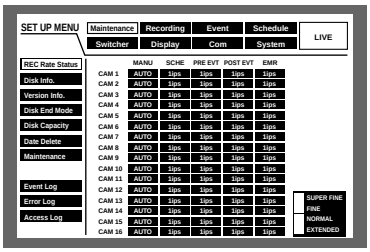
b After completing the settings, press the SETUP/ESC button for 2 seconds or more. The SETUP MENU will be closed.
→ Live image will be displayed again.

Important:

If the settings are changed, all login users will be forcefully logged out.

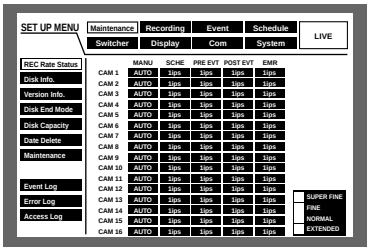
■ Functions for Maintaining (Maintenance)

Perform the settings for the hard disk drives.
It is possible to check the histories (log) of event occurrence, error occurrence and access.



① [REC Rate Status] Check the recording rate and the image quality for each camera channel

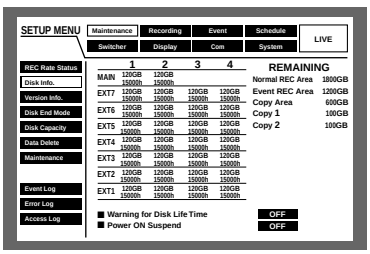
Recording rate in each recording mode for each camera (as shown below) will be displayed in list form.



MANU: Manual recording
SCHE: Scheduled recording
PRE EVT: Pre-event recording
POST EVT: Post-event recording
EMR: Emergency recording

② [Disk Info.] Check the available hard disk space

The available hard disk space of the followings will be displayed: The built-in hard disk (normal recording area, event recording area and copy area), extension unit (EXT1 - 7), DVD-RAM, CD-R and DVD-R disk drive connected to the copy port (COPY1 or COPY2).
Refer to page 29 for detailed built-in hard disk.
It is also possible to perform the settings of the hour-meter (the active time of the HDD) warning and of the HDD safety mode with this menu.



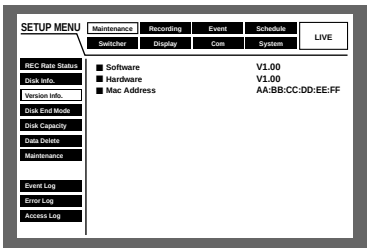
Note: The displayed available disk space on this menu will not include the space required for data management. Therefore, the undercounted available disk space will be displayed.

- **Hour meter warning setting**
  Select the duration as the maximum active time of the hard disk from the followings. Warning will be displayed when the set time have passed.
  10 000 H/20 000 H/30 000 H

- **HDD safety mode**
  The HDDs will not start up with the default setting when installing this unit in the rack without turning the power of the unit off, to prevent malfunction caused by shock or vibration.
  After completing the installation, set the HDD SAFETY MODE to OFF. Otherwise, the unit will be unable to operate when turning the power on after the shutdown caused by unexpected incident such as power outage.
  Refer to page XX for further information.

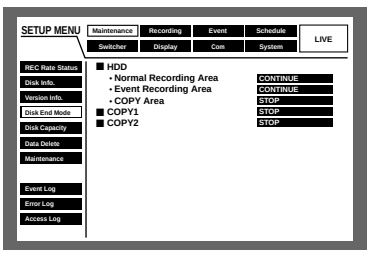
③ [Version Info.] Check the version information

Version information of the software and the hardware, and the MAC address will be displayed.



④ [Disk End Mode] Set actions to be taken when the available hard disk space has run out

Select an action from the followings to be taken when the available space of the built-in hard disk (normal recording area, event recording area, copy area) or the external recording device (DVD-RAM, CD-R or DVD-R disk drive) connected to the copy port (COPY1, COPY2) is running out.



CONTINUE: When the available disk space has run out, old data will be overwritten by new data. In this case, the oldest data is the first to be overwritten.

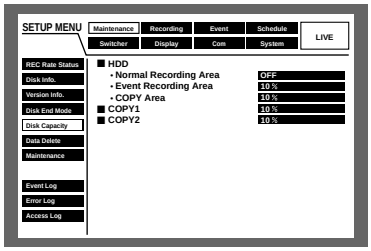
STOP: When the available disk space has run out, recording and copying will be canceled.

⑤ [Disk Capacity] Set actions to be taken when the available disk space is riunning out

Select an action from the followings to be taken when the available space of the built-in hard disk (normal recording area, event recording area, copy area) or the external recording device (DVD-RAM, CD-R or DVD-R disk drive) connected to the copy port (COPY1, COPY2) reaches the specified level.

The setting range is between 1% and 10% (in 1% step).

The warning will not be issued when OFF is selected.



Important:

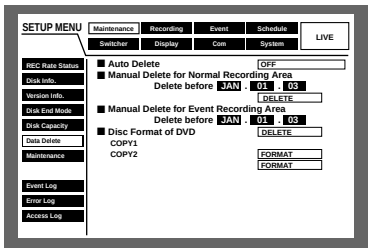
When "CONTINUE" is selected for "Disk End Mode", warning will not be issued.

⑥ [Data Delete] Delete image data on the hard disk

Delete image data on the built-in hard disk.

Auto deletion and manual deletion are available to delete image data.

It is also possible to initialize (format) a DVD-RAM disk with this menu.



● Auto Delete

It is possible to delete recorded images automatically when the set days have passed from the day the image was recorded. Refer to a system administrator for further information.

Available days for the auto delete function are as follows.

Auto delete function will be not work when OFF is selected.

OFF/1DAY/2DAYS/3DAYS/4DAYS/5DAYS/6DAYS/7DAYS/8DAYS/9DAYS/10DAYS/14DAYS/30DAYS/45DAYS/60DAYS/90DAYS/120DAYS/150DAYS/180DAYS

● Manual Delete for Normal Recording Area

By setting time and date, images in the normal recording area of the hard disk that had been recorded until a day before the set time and date will be deleted.

Enter 4-digit number for year when entering time and date.

● Manual Delete for Event Recording Area

By setting time and date, images in the event recording area of the hard disk that had been recorded until a day before the set time and date will be deleted.

● Disc Format of DVD

Initialize (format) a DVD-RAM disk in the DVD-RAM drive connected to the copy port.

⑦ [Maintenance] Replace the hard disk drive

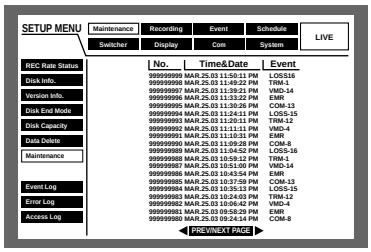
Use this menu when replacing the hard disk drive.

By following the displayed instructions, it will be possible to replace the hard disk drive without turning off the power of the unit.

Refer to page XX for further information about the replacement of the hard disk.

⑧ [Event Log] Check the event log

Event log (time and date at an event occurrence, details) will be displayed in list form.
Refer to page XX for further information about each event.

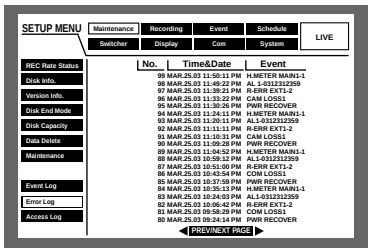


COM: Command alarm
EMR: Emergency recording
LOSS: Video loss
TRM: Terminal alarm
VMD: Motion detection

Note: Up to 750 event logs can be kept. When more than 750 event logs are filed, old event log will be overwritten by new event log. In this case, the oldest log is the first to be overwritten.

⑨ [Error Log] Check the error log

Error log will be displayed in list form.



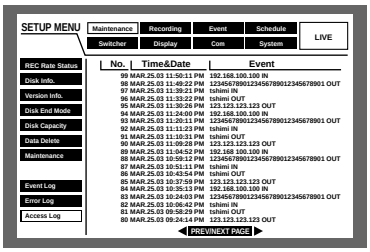
Note: Up to 100 error logs can be kept. When more than 100 error logs are filed, old error log will be overwritten by new error log. In this case, the oldest log is the first to be overwritten.

Indication	Description	Cause
AL*-YYMMDDhhmmss	Asterisk (*) indicates camera channel number YYDDMMhhmmss indicates the played time when alteration had been detected.	Detects alateration
W-ERR X-Y	X indicates the unit/unit number that has the errored hard disk Y indicates the disk number in the unit (unit number)	Failed to write data on the HDD
REMOVE X-Y	X indicates the unit/unit number that has the hard disk that is removed from the subject for recording. Y indicates the disk number in the unit/unit number	Auto removal of the link
#-FULL	# indicates the partition name/external recording device port number	No available disk space
THERMAL -X	X indicates the unit/unit number in which the thermal error occurred	Thermal error
FAN X-Y	X indicates the unit/unit number Y indicates the fan number (1-4) Y will be left out if the nalfunctioning fan is of the extension unit	The fan is makfunctioning

Indication	Description	Cause
#-nn%	# indicates the partition name of the hard disk/external recording device nn indicates the available disk space	Warning for the disk space running out
SMART X-Y	X indicates the unit/unit number that has the errored hard disk Y indicates the unit/unit number	HDD SMART error
PWR LOSS		Detects the power outage
H.METER X-Y	X indicates the unit/unit number that has the errored hard disk Y indicates the unit/unit number	Hour-meter warning
PROTECT -#	# indicates the external	Disk has the write protection
NO DISK -#	# indicates port number to which the external recording device connected	Disk is not inserted
MEDIUM -#	# indicates port number to which the external recording device connected	Incompatibel disk
UNFORMATTED -#	# indicates port number to which the external recording device connected	Unformatted disk
PWR RECOVER	# indicates port number to which the external recording device connected	Recover form the power outage

⑩ [Access Log] Chack the access log

The time, user name and IP addresses when logging in/out to/from this unit will be displayed in list form.



****IN:** The user name or the IP address displayed before IN indicates the user/host logged in.

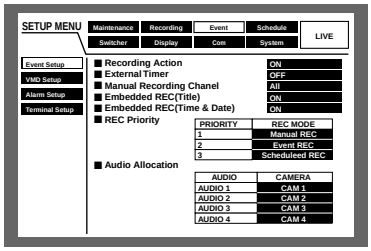
****OUT:** The user name or the IP address displayed before OUT indicates the user/host logged out.

**: User name or host name

Note: Up to 100 access logs can be kept. When more than 100 access logs are filed, old access log will be overwritten by new access log. In this case, the oldest log is the first to be overwritten.

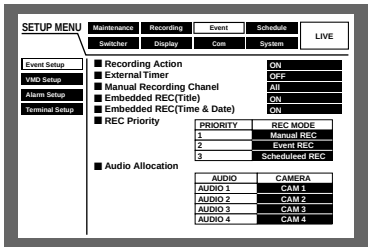
■ [Recording]

Perform the settings for the basic recording (REC Setup) and the emergency recording.



① [REC Setup] Perform the recording for the basic recording.

Perform the following settings for the basic recording.



- **Recording Action**
  Select ON or OFF to record or not record.
  ON: Recording will be performed.
  No recording will be performed.

Important:

When OFF is selected for this setting, no recordings will be performed. Select ON for normal use except when required to stop recording forcefully such as when trouble occurred with the unit.

- **[External Timer]**
  Select ON or OFF to determine whether to start recording when the power is turned on by the connected external timer (or the switch) or not.
  ON: Manual recording will start automatically after completing the system check.
  OFF: Manual recording will not start automatically after completing the system check.

Important:

When ON is selected, manual recording will start automatically after completing the system check.

Set to ON except when required to stop recording forcefully such as when the unit is malfunctioning.

- **[Manual Recording Channel]**
  Select a camera channel for manual recording from the followings. Refer to page xx for manual recording.
  MON2: Images from the camera channel currently displayed on the monitor 2 will be recorded.
  ALL: Images from all the camera channels will be recorded.

Important:

Even though "MON2" is selected, images from all the camera channels will be recorded while the sequential display or when live image is not displayed on the monitor 2.

When "MON2" is selected, images from a camera channel for other manual recording that is started later will be recorded regardless of the operation using the buttons on the front panel or via a network.

- **[Embedded REC (Title)]**
  Select ON or OFF to determine whether to record a displayed camera title together as a part of the recorded image or not.
  ON: Record camera titles together as a part of the recorded image.
  OFF: Does not record camera titles.

- **[Embedded REC (Time & Date)]**
  Select ON or OFF to determine whether to record displayed time and date together or not.
  ON: Record time and date together as a part of the recorded image.
  OFF: Does not record time and date.

Important:

It is possible to select ON or OFF to determine whether to display the camera title or the time and date recorded together with the images even though OFF is selected for "Embedded". (Refer to page XX.)

When ON is selected for "Embedded", it is impossible to hide the camera title and the time and date. (Refer to page xx.)

- **[REC Priority]**
  Assigns priorities to recording modes. Assigns priorities 1 (highest) - 3 (lowest) to each recording mode.
  Refer to page xx for further information about each recording mode.

- **[Audio Allocation]**
  Allocates audio from the audio input connectors (1 - 4) on the rear panel of the unit to camera channels.
  Allocate audio in accordance with channels of connected cameras. When OFF is selected, audio will not be heard.

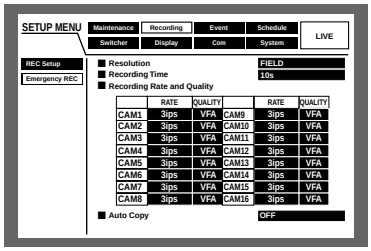
Important:

- When a live image from the audio assigned camera channel is displayed on a single screen on the monitor 2, audio will be heard. When displaying on a multi-screen, audio will not be heard.
- When images from the audio assigned camera channel are displayed on a single screen, recorded audio will be heard. When displaying on a multiscreen, recorded audio will not be heard.
- Audio will be recorded regardless of displaying on a single screen or a multi-screen.

② [Emergency REC] Perform the settings for emergency recording

Perform the settings for emergency recording such as recording time or recording rate for emergency recording.

Refer to page xx for further information about emergency recording.



- **Resolution**

  Select a recording resolution from the following.

  FRAME 3D ON: High resolution (720 x 480), with camera shake compensation

  FRAME 3D OFF: High resolution (720 x 480)

  FIELD: Standard resolution (720 x 240)

  SIF: Low resolution (360 x 240)

- **Recording Time**

  Perform the settings of recording time and recording action for emergency recording.

  The following are available for recording time.

  1 s - 10 s (in 1 second intervals)

  20 s/30 s

  1 m - 10 m (in 1 minute intervals)

  20 m/30 m/40 m/50 m/60 m

  MANUAL: Recording will continue while the external switch is being held down.

  CONTINUE: Recording will not stop until the [ALARM RESET] button on the front panel of the unit is pressed.

- **[Recording Rate and Quality]**

  Perform the settings of recording rate and image quality for emergency recording.

  The following are available for recording rate.

  OFF/1 ips/2 ips/3 ips/5 ips/6 ips/7.5 ips/10 ips/15 ips/30 ips/60 ips

Important:

- When OFF is selected for a specified camera channel, images from a camera channel set to OFF will not be recorded.
- When "FRAME 3D ON" or "FRAME 3D OFF" is selected, the total recording rates of CAM 1 - CAM 16 (for WJ-HD316) must be less than 30 ips.
- When "FIELD" is selected, the total recording rates of CAM 1 - CAM 16 (for WJ-HD316) must be less than 60 ips.
- When "SIF" is selected, the total recording rates of CAM 1 - CAM 16 (for WJ-HD316) must be less than 120 ips.
- When "FRAME 3D ON", "FRAME 3D OFF" or "SIF" is selected, it is impossible to select 60 ips.

  The following are available for image quality.

  SFA/SFB: Top quality (SUPER FINE)

  FQA/FQB: High quality (FINE)

  NQA/NQB: Standard quality (NORMAL)

  EXA/EXB: Low quality (EXTENDED)

  **A is suitable for less dynamic images.

  **B is suitable for more dynamic images.

- **[Auto Copy]**

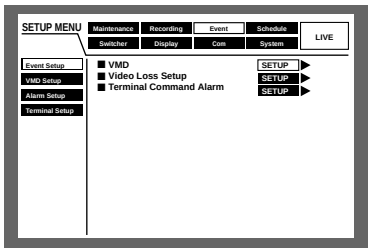
  Select ON or OFF to set whether or not to automatically copy images recorded by emergency recording onto the copy area on the built-in hard disk or DVD-RAM disk.

Important:

When OFF is selected for "Auto Copy" on "Basic setup" of "System", the auto copy function will not work after emergency recording even though ON is selected for this setting. Select "HDD", "COPY 1" or "COPY 2" for "Auto Copy".

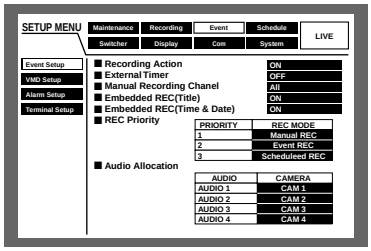
■ [Event] Function for Events

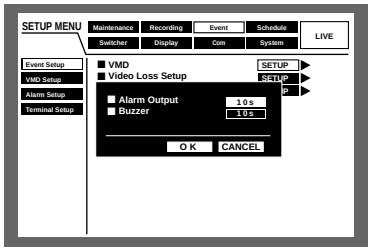
Perform the settings for event actions of each event type (motion detection, video loss, command alarm and terminal alarm).



① [Event Setup] Settings for the alarm output duration and the buzzer duration

Perform the settings for alarm output duration and buzzer sound duration for each event type (motion detection, video loss, command alarm and terminal alarm).





The following are available for alarm output duration.
When OFF is selected, alarm output will not be supplied.
(s: second, m: minute)

OFF: No alarm output is supplied.
1 s - 30 s (in 1 second intervals)
/40 s/50 s/1 m/2 m/3 m/4 m/5 m

EXT: Alarm output will continue until the [ALARM RESET] button is pressed.

Important:

Alarm output duration cannot be set for video loss. Signals will be supplied continuously from the camera error output terminal on the rear panel during the period when the video signal is lost. (Refer to page xx.)

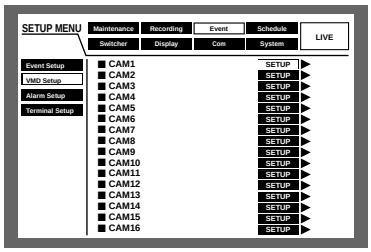
The following are available for buzzer sound duration.
When OFF is selected, a buzzer will not sound.
(s: second, m: minute)

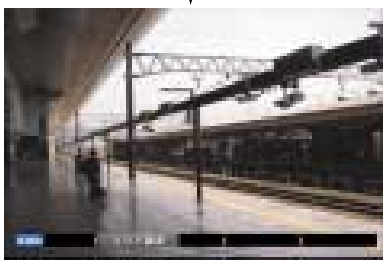
OFF: The buzzer will not sound.
1 s - 30 s (in 1 second intervals)
/40 s/50 s/1 m/2 m/3 m/4 m/5 m

EXT: The buzzer will continue until the [ALARM RESET] button is pressed.

② [VMD Setup] Perform the settings for the motion detection function

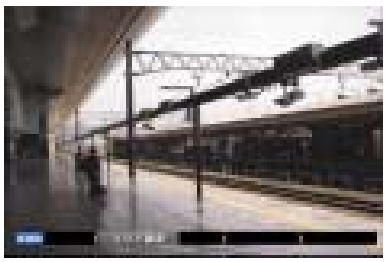
Select ON or OFF to determine whether to enable or disable the motion detection function for each camera channel.
When ON is selected, perform the settings for the auto motion detection area for each camera channel. Up to 4 areas can be set for a camera channel for the detection area. Refer to page xx for further information about the auto motion detection function.





[Screenshot 1]

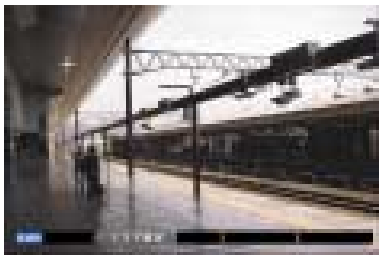
Start operation from the camera channel selection menu of the "VMD Setup" window.



z Rotate the jog dial to select ON for a desired camera channel to which the motion detection function to be applied, and press the SET button.

[Screenshot 2]

The "VMD Setup" window will be displayed.

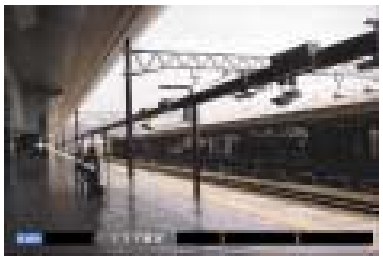


x Rotate the jog dial to select "SETUP AREA" on the status bar.

Note: To set all areas on the monitor as the motion detection area, select "ALL AREA" and press the SET button.

[Screenshot 3]

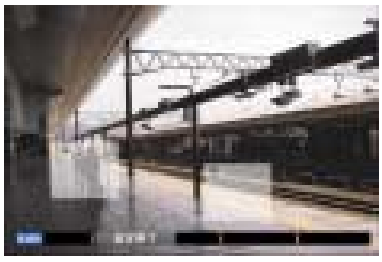
The cross cursor will be displayed on the "VMD Setup" window.



c Move the cross cursor to a desired point to be set as the start point of the motion detection area using the arrows button, and press the SET button.

[Screenshot 4]

The start point of the motion detection area is allocated.



v Move the cross cursor to a desired point to be set as the end point of the motion detection area using the arrows button, and press the SET button.

[Screenshot 5]

The motion detection area is set with the start point and the end point as the points at opposite angles of the motion detection area.

b Repeat steps 3 and 4 to set another motion detection area.

Up to 4 areas can be set. Created areas will be named automatically as A, B, C and D in the created order.

n To complete the settings, rotate the jog dial to select "EXIT" on the status bar, and press the SET button.

→ The "VMD Setup" window will be closed.

● Delete the motion detection area

[Screenshot 1]

Start operation from the "VMD Setup" window.

z Rotate the jog dial to select "DELETE AREA" on the status bar.

Note: After selecting "DELETE ALL AREA", pressing the SET button will delete all of the motion detection area.

[Screenshot 2]

The cross cursor will be displayed on the "VMD Setup" window.

x Move the cross cursor onto an area to be deleted using the arrows button and press the SET button.

c To complete the settings, rotate the jog dial to select "EXIT" on the status bar.
→ The "VMD Setup" window will be closed.

● Set the sensitivity

Set the sensitivity for the created motion detection area. Sensitivity can be set for each area.

[Screenshot 1]

Start operation from the "VMD Setup" window.

z Rotate the jog dial to select "SENSITIVITY" on the status bar.

[Screenshot 2]

The cross cursor will be displayed on the "VMD Setup" window.

x Move the cross cursor to select an area using the arrows button (A B).

c Select the sensitivity for the selected area from the following.
OFF: No motion will be detected in this area.
LOW: Low sensitivity
MID: Standard sensitivity
HIGH: High sensitivity

v To complete the settings, rotate the jog dial to select "EXIT" on the status bar, and press the SET button.
→ The "VMD Setup" window will be closed.

● Set the detection mode

Perform the settings of the detection mode (method of detection) in the set detection area. Specifying a method of detection in a detection area is available by the setting detection mode.

[Screenshot 1]

Start operation from the "VMD Setup" window.

z Rotate the jog dial to select "VMD MODE" on the status bar.

[Screenshot 2]

The detection mode menu will be displayed.

x Set the detection mode.
Move the cursor to a desired detection mode using the arrows button (A B).
Check the radio button next to a desired detection mode using the arrows button (D C) and pressing the SET button.
Refer to the following for further information about each of the detection mode.

<ANY AREA>

An event action will be performed according to the settings when "motion" is detected in any of the set motion detection areas.

<VECTOR>

Move the cursor to an area for the settings of VECTOR using the arrows button (C) and rotate the jog dial to select an area. Move the cursor to the parameter box of the selected area using the arrows button (B) to select an interval time for an object moving between each area from the following.
--/5 s/10 s/20 s/30 s/40 s/50 s/1 m(min)

<DURATION>

Move the cursor to a parameter box of each area using the arrows button (B) and rotate the jog dial to select a moving duration for an object in each area from the following.

--/5 s/10 s/20 s/30 s/40 s/50 s/1 m

c To complete the settings, rotate the jog dial to select "EXIT" on the status bar, and press the SET button.
→ The "VMD Setup" window will be closed.

● About the Detection mode

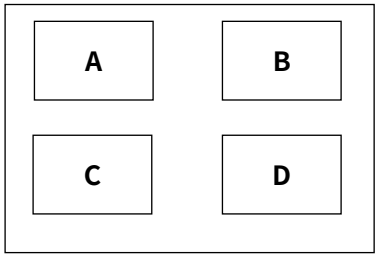
Perform the settings of the detection mode (method of detection) in the set detection area. Specifying a method of detection in a detection area is available by the setting detection mode.
There are three detection modes as follows.

Important:

Activating two or more detection modes simultaneously is not possible.

<ANY AREA (to detect "motion" in the area)>

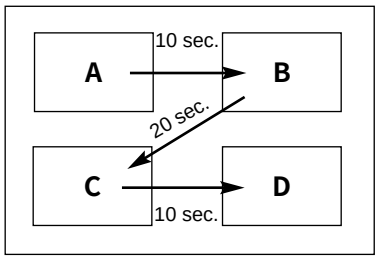
An event action will be performed according to the settings when "motion" is detected in any of the set motion detection areas.



Any motion will be detected anywhere in the A, B, C, D areas.

<VECTOR (to detect object moving to a certain direction)>

An event action will be performed according to the settings when an object moves within the set time to the other detection area in the set order.

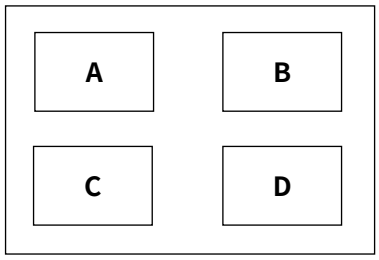


The following is an example.
Motion is detected in area B within 10 seconds after being detected in area A.
Motion is detected in area C within 20 seconds after being detected in area B.
Motion is detected in area D within 10 seconds after being detected in area C.
When all of the above have occurred, an event action will be performed.

<DURATION (to detect object keeps on moving in the area)>

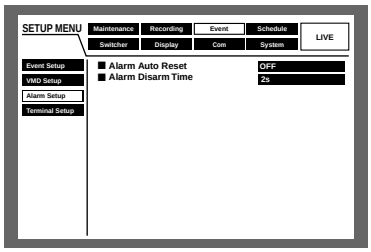
An event action will be performed according to the settings when an object keeps on moving for the set period in the detection area. For example, in case of the following settings; 10 sec. for the area A and B, 20 sec. for area C and 30 sec. for area D:

An event action will be performed when an object keeps on moving for 10 seconds in area A or B, or for 20 seconds in area C, or for 30 seconds in area D.



③ [Alarm Setup] Perform the settings for alarm auto reset and alarm disarm

Perform the settings for the alarm displaying duration. The alarm display will automatically disappear when the displaying duration has passed. (Alarm Auto Reset)
Perform the settings to suspend the set duration when the same type of the event (motion detection, video loss, terminal alarm, command alarm) has occurred sequentially so that the event action will not be performed each time. (Alarm Disarm)



● [Alarm Auto Reset]

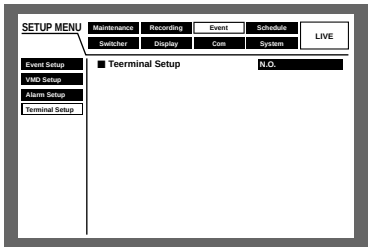
The following are possible for the alarm auto reset.
When OFF is selected, the alarm display will not automatically disappear.
To erase the alarm display, press the ALARM RESET button.
OFF/1 s - 30 s (in 1 second intervals)
40 s/50 s/1 m/2 m/3 m4 m/5 m

● [Alarm Disarm]

The following are possible for the alarm disarm.
2 s - 10 s (in 1 second intervals)

④ [Terminal Setup] Perform the settings for the alarm terminal polarity.

Select how to supply the signal to the alarm terminal.



N.O.: Signals will be supplied when short-circuited. (Normally Open)
N.C.: Signals will be supplied when open-circuited. (Normally Closed)

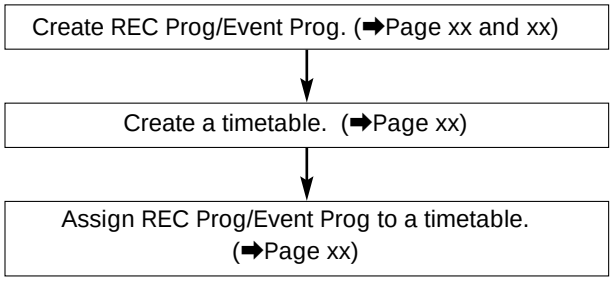
Note: It is possible to set polarities for each of the alarm inputs 1-16 respectively using a PC via the network.

■ [Schedule] Perform the settings for the recording/event action schedule

Perform the settings for the recording schedules of recording and event action by designating a day of the week and time.
A day can be divided into up to 6 time zones, and recording programs and event action programs can be assigned to each time zone to create a recording schedule.
Up to 4 normal recording programs (REC Prog) and up to 4 event action programs (Event Prog) can be created. Perform the settings for the REC Prog: resolution and recording rate. Perform the settings for the Event Prog: action mode for each event type and auto copy.
It is possible to create special days apart from the normal schedule, and a recording program of another day of the week can be switched to a special days program automatically.

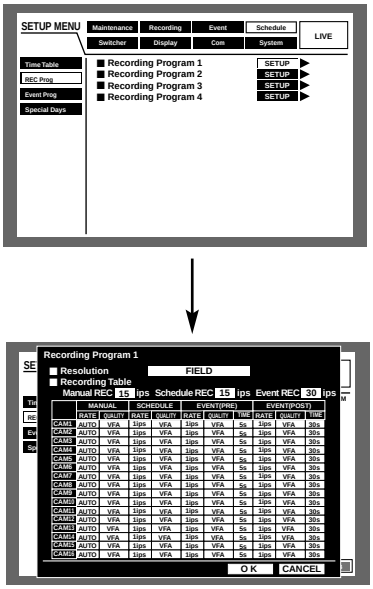
Flowchart how to create a schedule

Follow the procedures below to create schedules.



① [REC Program] Create a recording program

Perform the settings of resolution, and recording rate for each recording mode, and the recording rate and image quality of each camera channel. Up to 4 recording programs can be created.



● [Resolution]

Select a resolution for images to be recorded from the following.
FRAME 3D ON: High resolution (720 x 480) with the motion blur compensation
FRAME 3D OFF: High resolution (720 x 480)
FIELD: Standard resolution (720 x 480)
SIF: Low resolution (360 x 240)

Note: When "FRAME 3D ON" is selected, it is possible to record moving object with a few blurring.

● Recording Rate for Each Recording Mode

Perform the settings of recording rate for each recording mode (manual recording, scheduled recording and event recording).
Assign the maximum recording rate according to the resolution to each recording mode.
The following are the maximum recording rate for each resolution.

Resolution	Maximum recording rate
FRAME 3D ON	30 ips
FRAME 3D OFF	30 ips
FIELD	60 ips
SIF	120 ips

The following are available for the recording rate for each resolution.
OFF/2 ips/3 ips/5 ips/6 ips/7.5 ips/10 ips/15 ips/30 ips/60 ips/120 ips

Important:

- When "FRAME" is selected for "Resolution", "60 ips" and "120 ips" are not available. When "FIELD" is selected, "120 ips" is not available.
- The total recording rates for each recording mode must be less than the maximum recording rate of each resolution.
  Examples: When "FIELD" is selected and set the total recording rates for each recording mode less than 60 ips.
  Manual recording: 15 ips
  Scheduled recording: 15 ips
  Event recording: 30 ips

● Recording Rate and Image Quality for Each Camera Channel

Perform the settings for recording rate, image quality and recording duration for each camera channel (only for event pre-recording and event post-recording).
Perform the settings for each recording mode. Assign the recording rate for each camera channel as described in "Recording Rate for Each Recording Mode" above.

The following are for the recording rate. When OFF is selected, images from the selected camera channel will not be recorded.
OFF/0.1 ips/0.2 ips/0.3 ips/0.4 ips/0.5 ips/1 ips/2 ips/3 ips/5 ips/6 ips/7.5 ips/10 ips/15 ips/30 ips/60 ips

AUTO: Recording rate will be set automatically. (Not possible for event pre-recording and event post-recording)

Important:
The total recording rates of each camera channels in the same recording mode must be less than the recording rate as described in "Recording Rate for Each Recording Mode" above.
Examples: When selecting "FIELD" for resolution, "15 ips" for manual recording, "15 ips" for scheduled recording, "30 ips" for event recording:
Total recording rates of CAM 1 - 16 (manual recording): less than 15 ips
Total recording rates of CAM 1 - 16 (scheduled recording): less than 15 ips
Total recording rates of CAM 1 - 16 (event recording): less than 30 ips

When the total recording rates becomes more than the set value, the recording mode table will turn red.

Recording mode table

The larger total recording rates between recording rates of event pre-recording and recording rates of event post-recording for each camera channel must be less than the recording rate as described in "Recording Rate for Each Recording Mode" above.

The following are available for image quality.
SFA/SFB: Top quality (SUPER FINE)
FQA/FQB: High quality (FINE)
NQA/NQB: Standard quality (NORMAL)
EXA/EXB: Low quality (EXTENDED)
**A is suitable for less dynamic images.
**B is suitable for more dynamic images.

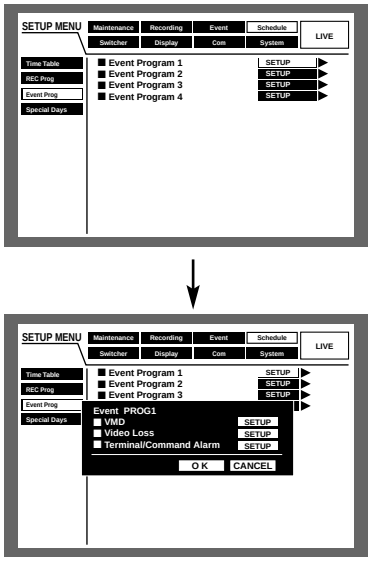
The following are available for recording duration (only event pre-recording and event post-recording).
1 s - 10 s (in 1 second intervals)
20 s/30 s/1 - 10 m (in 1 minute intervals)
20 - 60 m (in 10 minutes intervals)

MANUAL: Recording duration will be as follows depending on the event type.
- At a motion detection: For 8 seconds
- At a video loss occurrence: During a video loss occurrence
- At a terminal alarm occurrence: During the supply of a signal
- At a command alarm: For 8 seconds

CONTINUE: Recording will be performed continuously until the [ALARM RESET] button is pressed.

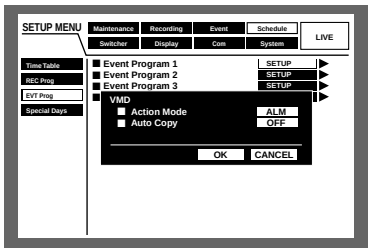
② [Event Prog] Create event programs for an event occurrence

Perform the settings of event action for each event type (motion detection, video loss, terminal/command alarm) or of auto copy.



● VMD

Perform the settings of event action at a motion detection or the settings of the auto copy function.



Perform the settings for the following action mode. Refer to page xx for further information about each action mode.

ADM (Activity Detection Mode): Performs only recording, writing an event log and camera movement to a preset position at an event occurrence. Other event actions will not be performed.

ALM (Alarm Mode): Performs every event action according to the settings.

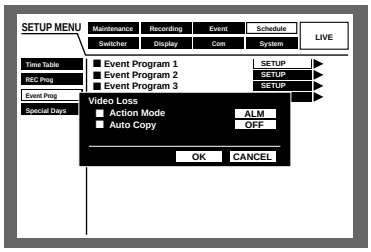
Auto copy is the function to copy recorded images automatically onto the copy area of the hard disk or the DVD-RAM disk.
Select ON or OFF to enable or disable the auto copy function.

ON: Enable the auto copy function
OFF: Disable the auto copy function

Note: When "OFF" is selected for "Auto Copy" of "Basic Setup" on "System", the auto copy function will not work even though "ON" is selected for this setting.
Select "HDD", "COPY 1" or "COPY 2" for "Auto Copy".

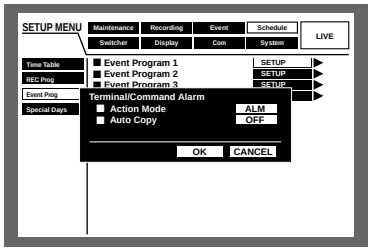
● Video Loss

Perform the settings of event action at a video loss or the settings of the auto copy function.
The contents to be set are same as the settings for "VMD" above.



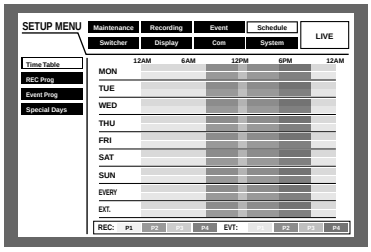
● Terminal/command alarm

Perform the settings of event action at a terminal/command alarm occurrence or the settings of the auto copy function.
The contents to be set are same as the settings for "VMD" above.



③ [Time Table] Assignment of REC Prog and Event Prog after setting the time zone

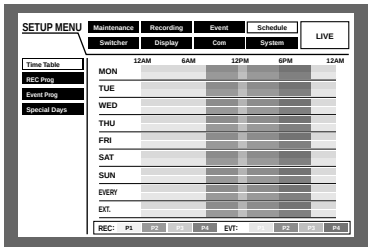
Create recording timetables for each day of the week, and assign REC Prog and Event Prog to each timetable. Up to 6 recording programs can be created.



Do the followings to create timetables.

[Screenshot 1]

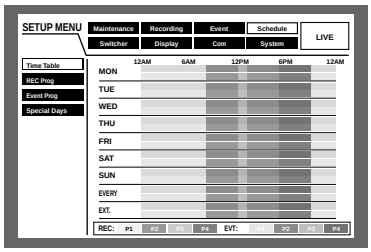
Start operation after displayed the timetable window.



z Press the SET button.

[Screenshot 2]

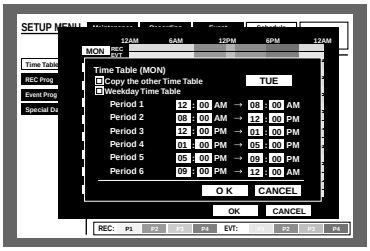
The pop-up setting menu of the timetable for every day of the week will be displayed.
The cursor will be displayed and will move to "MON" (Monday).



x Select a day of the week using the arrows button (D C) and press the [SET] button.
Note: When a signal is supplied from the ALARM/CONTROL connector (㉔ external recording changeover), the unit will work with the set timetable for "EXT."

[Screenshot 3]

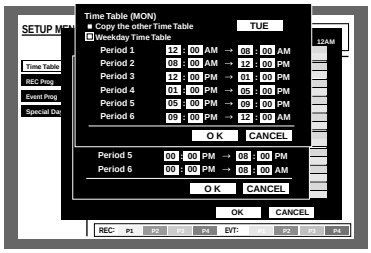
The pop-up setting menu of the timetable for the selected day of the week will be displayed.



c Select "Weekday Time Table" using the arrows button (D C) and rotate the jog dial to check the checkbox.

[Screenshot 4]

The checkbox for "Weekday Time Table" is checked.


Time Table (MON)
Copy the other Time Table
TUE
Weekday Time Table
Period 1 12 : 00 AM → 06 : 00 AM
Period 2 06 : 00 AM → 12 : 00 PM
Period 3 12 : 00 PM → 01 : 00 PM
Period 4 01 : 00 PM → 05 : 00 PM
Period 5 05 : 00 PM → 09 : 00 PM
Period 6 09 : 00 PM → 12 : 00 AM
O K
CANCEL
Period 5 00 : 00 PM → 06 : 00 PM
Period 6 00 : 00 PM → 06 : 00 AM
O K
CANCEL
OK
CANCEL
12AM
REC: P1 P2 P3 P4 EVT: P1 P2 P3 P4

v Move the cursor to the start time input box for "Period 1" using the arrows button.

b Rotate the jog dial to set the start time.
The end time can be set in the same way.
Repeat steps 4 and 5 to set for "Period 2" - "Period 6".
(It is not necessary to set for all of "Period 1" - "Period 6".)

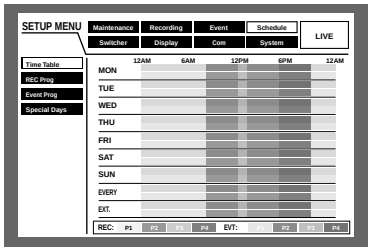
n Select OK using the arrows button and press the SET button.

Notes:

- To copy a timetable that is set for a different day of the week, select "Copy the Other Time Table" at step 3.
  Then, move the cursor to select OK and press the SET button.
- When the SET button is pressed after moving the cursor to CANCEL in step 6, the settings will be canceled and the selected timetable window will be closed.
- Until the SET button is pressed after moving the cursor to CANCEL in step 6, the settings will not be applied to the selected timetable.

[Screenshot 5]

The settings had applied to the selected timetable and the timetable for all days of a week will be displayed.



m Move the cursor to a time zone of the day of a week to which the REC Prog to be assigned using the arrows button.

, Rotate the jog dial to select a desired REC Prog/Event Prog.
(Rotating the jog dial changes the displayed REC Prog.)
REC Prog will be displayed with different colors.
Orange: REC Prog 1/Event Prog 1
Yellow: REC Prog 2/Event Prog 2
Pale purple: REC Prog 3/Event Prog 3
Indigo blue: REC Prog 4/Event Prog 4

Repeat steps 7 and 8 to assign REC Prog to other timetables.

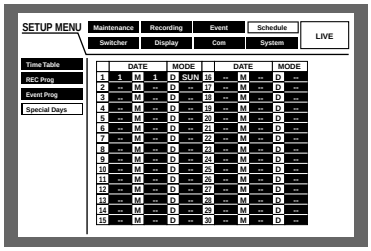
. Move the cursor to OK using the arrows button and press the SET button.
→ The REC Prog/Event Prog will be assigned to the selected time zone and the selected timetable window will be closed.

Notes:

- When the SET button is pressed after moving the cursor to CANCEL in step 9, the settings will be canceled and the selected timetable window will be closed.
- Until the SET button is pressed after moving the cursor to CANCEL in step 9, the programs will not be assigned to the selected timetable.

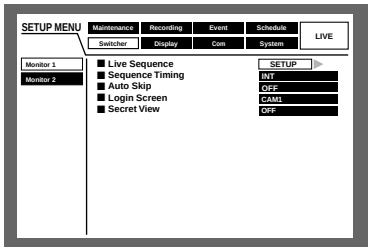
④ [Special Days] Perform the settings of recording programs for special days

Assign timetables to special days aside from other days of the week. Timetables for special days can be set for up to 30 days.
Perform the settings to specify dates as special days and apply recording schedule to the specified special days.



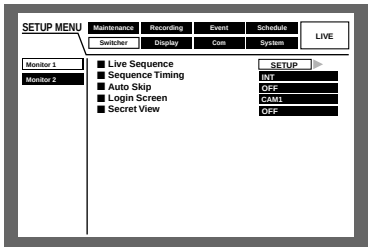
■ [Switcher] Perform the settings for switcher function

Perform the settings for image switching such as the sequential display setting or the waiting screen (while logging out) setting for displaying on monitors 1 and 2.



① [Monitor 1] Switcher function of monitor 1

Perform the settings for the switcher function of monitor 1.

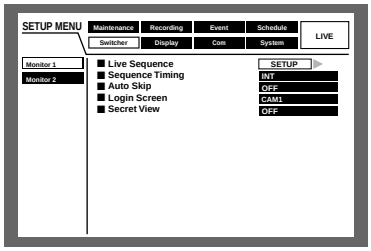


● Live Sequence

Perform the settings for the sequential display of live images as follows.

[Screenshot 1]

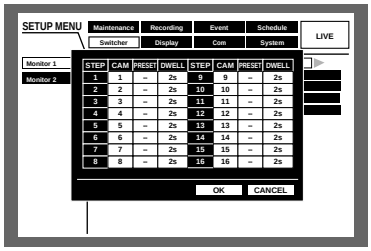
Start operation from the "Monitor1" menu of "Switcher" on the SETUP MEN.



z Move the cursor to "Live Sequence" using the arrows button (D C) and press the SET button.

[Screenshot 2]

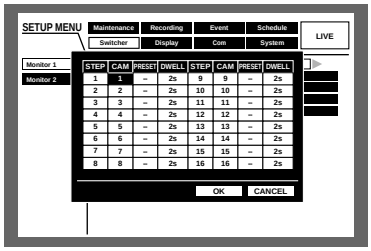
The "Live Sequence" pop-up menu will be displayed.



x Move the cursor to "CAM" of "STEP 1" using the arrows button.

[Screenshot 3]

The cursor moves to "CAM".



c Select how to display image from camera channels in "STEP 1" from the following by rotating the jog dial.

1 - 16: Displays an image from the selected camera channel on a single screen.

QUAD1 - 4: Displays images from the camera channels 1 - 4 on a 4-split screen.

QUAD5 - 8: Displays images from the camera channels 5 - 8 on a 4-split screen.

QUAD9 - 12: Displays images from the camera channels
9 - 12 on a 4-split screen.

QUAD13 - 16: Displays images from the camera channels
13 - 16 on a 4-split screen.

9SCREEN1 - 9: Displays images from the camera channels
1 - 9 on a 9-split screen.

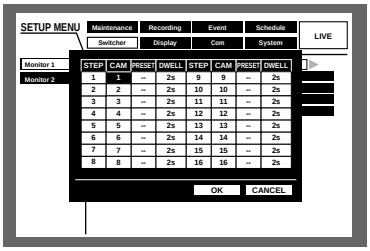
9SCREEN10 – 16 (Only for WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.

--: Skips the selected step.

v When displaying image from camera channels "1 - 16" on a single screen is selected in step 3, select the camera position.
Move the cursor to "PRESET" in "STEP 1" using the arrows button.

[Screenshot 4]

The cursor moves to the "PRESET" in "STEP 1".

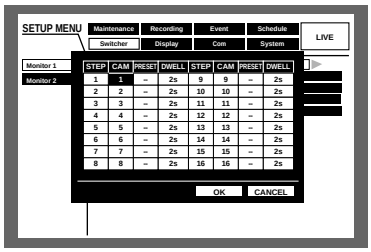


b Rotate the jog dial to select a preset position number of which image is displayed in "STEP 1" from the following.
1 - 64: Moves to the selected preset number.
--: Does not move to the preset position.

n Select "DWELL" in "STEP 1" using the arrows button.

[Screenshot 5]

The cursor moves to the "DWELL" in "STEP 1".



m Rotate the jog dial to select an interval time to go to the next sequential step from 1 - 30 seconds (in 1 second intervals).
The sequence step is skipped when "0 s" is selected.
Repeat steps 2 and 7 to set for other sequence steps.

, Move the cursor to "OK" using the arrows button and press the SET button.

→ The settings for the sequential display is set and the sequence setting menu closes.

Notes:

- If you move the cursor to "CANCEL" in the step 8 and press the SET button, the setting is canceled and the sequence setting menu closes.
- The settings for the sequential display will not be applied until the SET button is pressed after selecting "OK" using the arrows button in step 8.

● Sequence Timing

Select an image switching way from the following.

INT: Switches images according to the settings for the live sequence.

EXT: Switches images by signals from an external device.

MON 2: Match with the image switching timing of the live sequence on monitor 2.

● Auto Skip

Select ON of OFF to determine whether or not to skip the camera channel without supplying video input signal because it is not connected, etc..

ON: Skips a channel if it is not connected.

OFF: Displays a black screen for a channel not connected.

● Login Screen

Select a camera image to be displayed during the login procedure from the following.

CAM1 - 16: Displays an image from the selected camera channel.

QUAD1 - 4: Displays images from the camera channels 1 - 4 on a 4-split screen.

QUAD5 - 8: Displays images from the camera channels 5 - 8 on a 4-split screen.

QUAD9 - 12: Displays images from the camera channels 9 - 12 on a 4-split screen.

QUAD13 - 16: Displays images from the camera channels 13 - 16 on a 4-split screen.

7 SCREEN: Displays images from the camera channels 1 - 7 on a 7-split screen.

9 SCREEN 1 - 9: Displays images from the camera channels 1 - 9 on a 9-split screen.

9 SCREEN 10 - 16 (only for WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.

10 SCREEN: Displays images from the camera channels 1 - 10 on a 10-split screen.

13 SCREEN: Displays images from the camera channels 1 - 13 on a 13-split screen.

16 SCREEN: Displays images from the camera channels 1 - 16 on a 16-split screen.

--: No camera image will be displayed (screen in black)

● Secret View

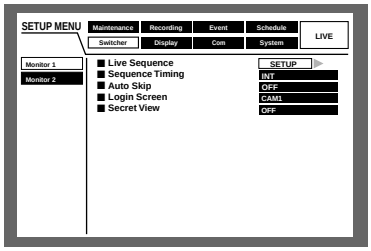
The secret view is a function to display a screen in black on monitor 1 when camera images displayed with a single screen on monitor 2. Select ON or OFF to determine whether to enable or disable the secret view function.

ON: Enables the secret view function. (Camera image displayed with a single screen on monitor 2 will be displayed on monitor 1 in black screen.)

OFF: Disables the secret view function.

② [Monitor 2] Switcher function of monitor 2

Perform the setting for the switcher function of monitor 2.



● Live Sequence

The settings for "Live Sequence" are the same as for "Monitor1". Refer to page xx for further information.

● Sequence Timing

The settings for "Sequence Timing" are the same as for "Monitor1". Refer to page xx for further information.

- "EXT" is selectable only when an external device that can transmit a sequence signal is connected.
- The sequence changeover I/O on the rear panel will supply signals when "INT" is selected and will receive signals when "EXT" is selected.

● Auto Skip

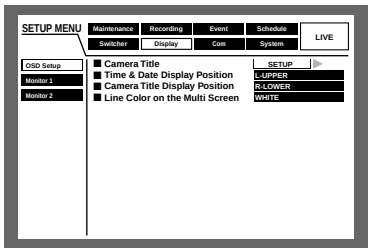
The settings for "Auto Skip" are the same as for "Monitor1". Refer to page xx for further information.

● Login Screen

The settings for "Login Screen" are the same as for "Monitor1". Refer to page xx for further information.

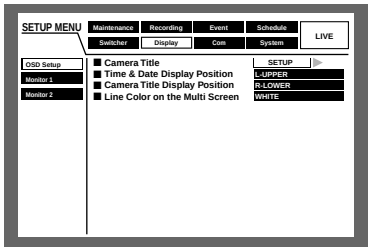
■ Display

Perform the display settings for monitors 1 and 2 connected to the unit.



① OSD Setup

Perform the On Screen Display settings for monitor 1 and monitor 2 such as the settings of camera titles or the settings of the time display position.

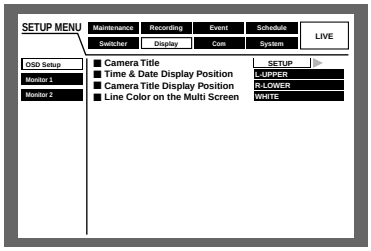


● Camera Title

Perform the settings for the camera title. Do the followings to set the camera title.

[Screenshot 1]

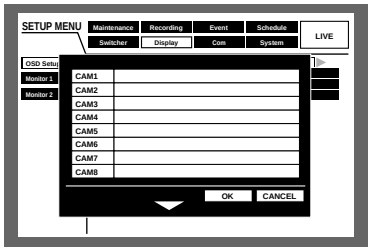
Start operation from the "OSD Setup" menu.



z Move the cursor to "Camera Title" using the arrows button (D C) and press the SET button.

[Screenshot 2]

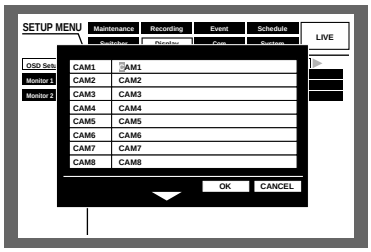
The camera title pop-up window will be displayed.



x Move the cursor to "CAM1" using the arrows button.

[Screenshot 3]

The cursor moves to " CAM1".

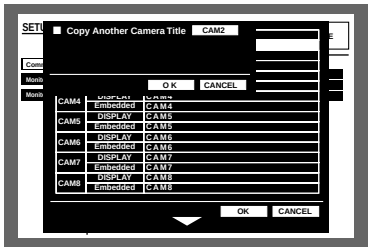


c Select a character to be entered by rotating the jog dial. Up to 16 characters can be entered.

v Move the cursor to the right side of the entered character using the arrows button.
Repeat steps 3 and 4 to enter the camera title.

Notes:

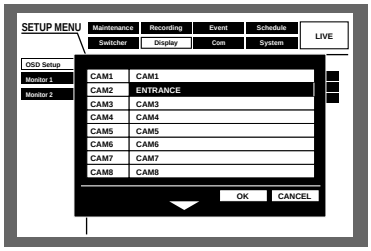
- To correct the entered characters, move the cursor to the character to be corrected and press the STOP button to delete it. Enter a correct character after deleting.
- To copy the camera title that has been set for another camera channel, follow the procedure below.
  1. Move the cursor to "CAM 1" in step 2 on the previous page and press the SET button. The following screen will be displayed.



  2. Select the camera channel of which camera title is to be copied by rotating the jog dial.
  3. Move the cursor to "OK" using the arrows button and press the SET button. The camera title will be copied.

[Screenshot 4]

The camera title is entered.



b Press the arrows button (A, B, C and D) to move the cursor to "OK" and press the SET button.
→ The camera title is set and the setting screen of the camera title closes.

Notes:
- If you move the cursor to "CANCEL" in the step 5 and press the SET button, the setting is canceled and the setting screen of the camera title closes.
- The settings for the camera title will not be applied until the SET button is pressed after selecting "OK" using the arrows button in step 5.

● Time and Date Display Position

Select a time and date display position from the following.

L-UPPER: Displays the time at the upper left of the screen.

R-UPPER: Displays the time at the upper right of the screen.

L-LOWER: Displays the time at the lower left of the screen.

R-LOWER: Displays the time at the lower right of the screen.

Notes:
- When setting the time and date to be recorded together with images, the time display will be recorded in the selected position.
- Refer to page xx for further information about "Embedded REC (Time & Date)".

● Camera Title Display Position

Select a camera title display position from the following.

L-UPPER: Displays the camera title at the upper left of the screen.

L-LOWER: Displays the camera title at the lower left of the screen.

R-UPPER: Displays the camera title at the upper right of the screen.

R-LOWER: Displays the camera title at the lower right of the screen.

CENTER: Displays the camera title at the center of the screen.

Note: When setting the camera title to be recorded together with images, the time display will be recorded in the selected position.
Refer to page xx for further information about "Embedded REC (title)".

● Line Color on the Multi Screen

Select a line color from the following.

OFF: No dividing line

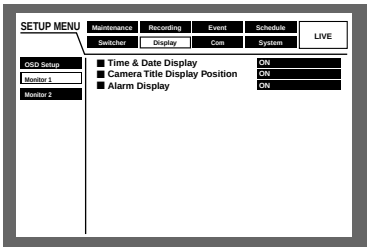
WHITE: Displays white lines.

GRAY: Displays gray lines.

BLACK: Displays black lines.

② [Monitor 1] Settings on monitor 1 display

Select ON and OFF whether or not to display the time, camera title and alarm display on the monitor 1.



● Time & Date Display

Select ON and OFF whether or not to display the time.

ON: Displays time.

OFF: Does not function.

● Camera Title Display

Select ON and OFF whether or not to display the camera title.

ON: Displays the camera title.

OFF: Does not function.

● Alarm Display

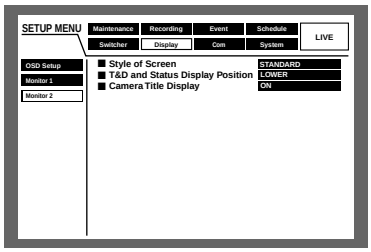
Select ON and OFF whether or not to activate the alarm display at an event occurrence.

ON: Displays the alarm display at an event occurrence.

OFF: Does not function.

③ [Monitor2] Settings on monitor 2 display

Perform the displaying settings for monitor 2 such as the task bar style, time display position on/off, camera title display position, etc..



The following explains the settings of the monitor 2 and the VGA monitor such as the task bar display style, time display position, camera title display ON/OFF, etc.

● Style of screen

Select a task bar style form the followings.
Refer to page XX for further information about the task bar style.
Style1: Select [Style1] for the style of screen.
Style2: Select [Style2] for the style of screen.
Style3: Select [Style3] for the style of screen.

● T & D and Status Display Position

When selecting the style 1, select the position of the time and date display and the status from the following.
UPPER: Displays them at the upper part of the screen.
LOWER: Displays them at the lower part of the screen.

● Camera Title Display

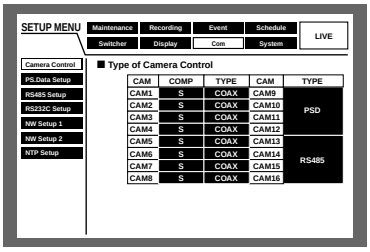
Select ON and OFF whether or not to display the camera title.
ON: Displays the camera title.
OFF: Does not function.

■ [Communication] Settings for communications with other devices

It is necessary to adjust communication speed and use the same communication protocol with external devices such as a controller when connecting those external devices to the DATA port or the SERIAL port (RS232C).
It is also required to perform the settings for the network such as the IP address and the gateway address when operating this unit a PC via a network such as LAN.
These are the descriptions of how to perform the required settings for communication with external devices.

① [Camera Control] Settings of the communication method and the cable compensation for camera control

Select a communication method for each camera channel to control cameras from the following.



Coaxial: Controls camera with the coaxial communication (CAM 1 - 8 CH are available for WJ-HD316, CAM 1 - 6 CH are available for WJ-HD309)
PSD: Controls camera with the PS·Data. (CAM 9 - 16 CH are available for WJ-HD316, CAM 7 - 9 CH are available for WJ-HD309)
RS 485: Controls camera with the RS 485 communication. (CAM 1 - 16 CH are available for WJ-HD316, CAM 1 - 9 CH are available for WJ-HD309)
OFF: Does not control camera (CAM 1 - 16 CH are available)

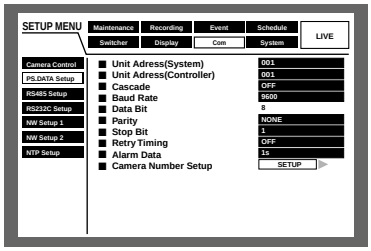
Notes:
- Perform settings according to the cameras connected to this unit.
- CAM 9-16 control 4 cameras each (only for WJHD316).
- When using the coaxial communication to control cameras, connect cameras to the VIDEO IN connectors 1 - 8 for WJ-HD316 (1 - 6 for WJ-HD309) (coaxial communication compatible). When controlling cameras connected to other VIDEO IN connectors with coaxial communication, use a coaxial communication unit (WJ-MP204). In this case, select "PSD" for the communication method for the camera channels to be controlled through the axial communication unit.
- To prevent operation mistake, set to OFF for the unused camera channels.

It is possible to compensate the video signal transmission loss from the camera when using the VIDEO IN connector 1 - 8. (cable compensation)
Perform the setting for the cable compensation according to the used cable length.
S: When the used cable length is shorter than 500 m
M: When the used cable length longer than 500 m and shorter than 900 m
L: When the used cable length longer than 900 m and shorter than 1 200 m

Notes:
- Use 5C-2V cables for the cable compensation.
- Perform the setting for the cable compensation properly according to the cable length. Otherwise camera pictures may not be displayed/recorded correctly.

② [PS Data Setup] Settings for the PS·Data

Perform the following settings for the PS·Data.



● Unit Address (System)

A unit address (System) is a unique number assigning to PS·Data devices. The addresses must be unique to identify system devices when connecting multiple devices compatible with PS·Data. Numbers, "001"-"099", are to be assigned as the unit addresses to the system devices.

● Unit Address (Controller)

The unit address (controller) is used to control a PS•Data device connected to this unit. Numbers, "001" - "099" are to be assigned.

● Cascade

Select ON or OFF whether or not to use the cascade connection.
Set this to ON when connecting two units or more in the cascade connection.
ON: Select this when connect units in the cascade connection.
OFF: Does not function.

● Baud Rate

Select communication speed for data transmission with a connected device from the following.
2 400/4 800/9 600/19 200/38 400 bps

● Data Bit

It is impossible to change the value for this setting.
8 bit

● Parity

Select a method to check a transmission error at communication from the following.
NONE: No parity check
EVEN: Even parity
ODD: Odd parity

● Stop Bit

Select a stop bit from the following.
1 bit/2 bit

● Retry Timing

Select a retransmission interval when data reception is not confirmed from the following.
OFF/100 ms/200 ms/400 ms/1 000 ms

● Alarm Data

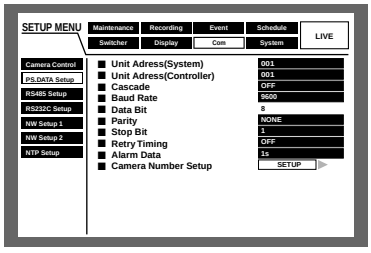
Select a method to inform the connected controller of an event occurrence from the following.
OFF: Does not function.
0 s: Informs the controller every time an event is detected.
1 s/5 s: Informs the controller when specified time has passed after detecting an event.

● Camera Number Setup

It is possible to assign a number to each camera channel to operate cameras using the controller compatible with PS·Data.
Do the followings to assign numbers to the camera channels.

[Screenshot 1]

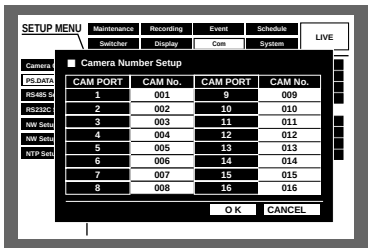
Start operation from the "PS·Data Setup" menu.



z Move the cursor to "Camera Number Setup" using the arrows button (D C) and press the SET button.

[Screenshot 2]

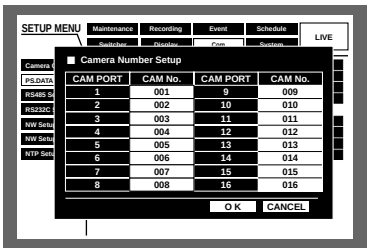
The "Camera Number Setup" pop-up window will be displayed.



x Move the cursor to a desired "CAM No." of "CAM PORT" using the arrows button.

[Screenshot 3]

The cursor will move to the selected "CAM No." of "CAM PORT".



c Select a camera number by rotating the jog dial.
Repeat steps 2 and 3 to assign camera numbers of other CAM PORT.

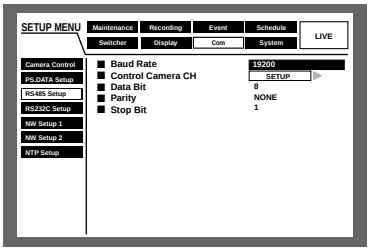
v Move the cursor to "OK" using the arrows button to and press the SET button.
→ Camera numbers will be assigned and the "Camera Number Setup" menu will be closed.

Notes:

- When moving the cursor to "CANCEL" in step 4 and press the SET button, the setting will be canceled and the "Camera Number Setup" menu will be closed.
- The assignment of camera numbers will not be applied until the SET button is pressed after moving the cursor to "OK" in the step 4.

③ [RS485 Setup] Settings for RS485

Perform the following settings for RS485.



● Baud Rate

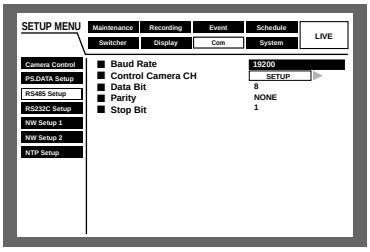
Select communication speed for data transmission with a connected device from the following.
4 800/9 600 /19 200 (bps)

● Control Camera CH

It is possible to assign camera channels to the RS485 ports 1 and 2 as below.

[Screenshot 1]

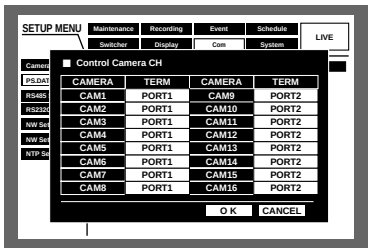
Start operation from the "RS485 Setup" menu.



z Move the cursor to "Control Camera CH" using the arrows button ($TD $TC) and press the SET button.

[Screenshot 2]

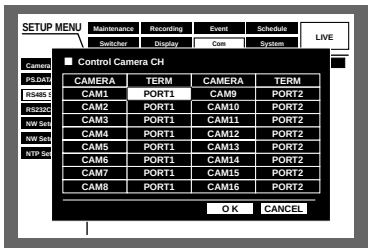
The "Control Camera CH" pop-up window will be displayed.



x Move the cursor to a desired cell in the "TERM" column using the arrows button.

[Screenshot 3]

The cursor will move to the selected cell in the "TERM" column.



c Select a port by rotating the jog dial.
PORT 1: Control through the RS485 port 1.
PORT 2: Control through the RS485 port 2.
Repeat steps 2 and 3 to assign other camera channels to be controlled through the RS485 ports.

v Move the cursor to "OK" using the arrows button and press the SET button.

→ Camera channels will be assigned and the "Control Camera CH" menu will be closed.

Notes:

- When moving the cursor to "CANCEL" in step 4 and press the SET button, the setting will be canceled and the "Camera Number Setup" menu will be closed.
- The assignment of camera channels will not be applied until the SET button is pressed after moving the cursor to "OK" in the step 4.

● Data Bit

The data length for communication will be displayed.
It is impossible to change the value for this setting.

● Parity

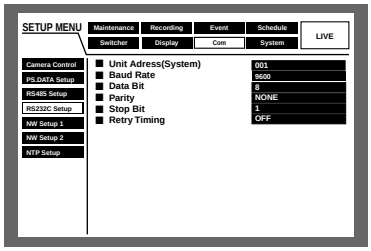
Methods to check a transmission error at communication will be displayed.
It is impossible to change the value for this setting.

● Stop Bit

Number of stop bit will be displayed.
It is impossible to change the value for this setting.

④ [RS232C Setup] Settings for RS232C

Perform the following settings for RS232C.



● Unit Address(System)

A unit address (System) is a unique number assigning to each system device. The addresses must be unique to identify system devices when connecting multiple system devices.
Numbers, "001"-"099", are to be assigned to the unit addresses to the system devices.

● Baud Rate

Select communication speed for data transmission with a connected device from the following.
9 600/19 200/38 400 (bps)

● Data Bit

Select a data length for communication from the following.
7/8 bit

● Parity

Select a method to check a transmission error at communication from the following.
NONE: No parity check
EVEN: Even parity
ODD: Odd parity

● Stop Bit

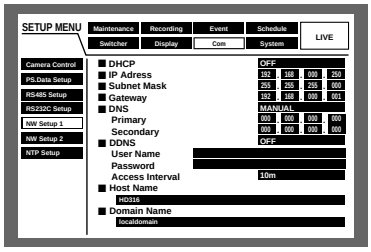
Select a stop bit from the following.
1/2 bit

● Retry Timing

Select a retransmission interval when data reception is not confirmed from the following.
OFF/100 ms/200 ms/400 ms/1 000 ms

⑤ [NW Setup 1] Basic network settings

Perform the following basic network settings to operate this unit using a PC via a network such as LAN.



● HTTP Port Number

Specify the HTTP port number to be used to transfer images from this unit. It is not necessary to change it for normal use.

● User Authentication

Select ON and OFF whether or not to activate user authentication at access from a PC to this unit.
When ON is selected, the user authentication window will be displayed at access from a PC.
The top page will be displayed if the entered user name and password are registered.
ON: Activates user authentication.
OFF: Does not function.

Note: It is recommended to set to ON for the user authentication for security.

● Host Authentication

Select ON or OFF whether or not to restrict access by IP addresses at access from a PC to this unit.
When ON is selected, only PCs with registered IP address can access this unit
Using the user authentication together will enhance the network security.
ON: Activates host authentication.
OFF: Does not function.

● Line Speed

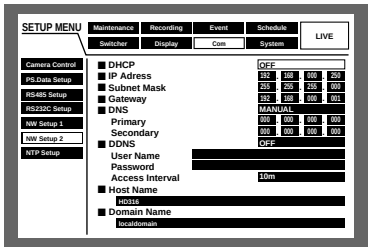
The line speed will be displayed.
It is impossible to change the value for this setting.

● Live Video Quality

Image quality level for a live (FQB: high quality) will be displayed.
It is impossible to change the value for this setting.

⑥ [NW Setup 2] Network connection settings

Perform the following network connection settings to operate this unit using a PC via a network such as LAN.



● DHCP

Select ON or OFF whether or not to use the DHCP server.
When obtaining IP addresses, net mask and a gateway address from the DHCP server, set to ON.
If not, set to OFF and enter those addresses manually.
ON: Uses the DHCP server.
OFF: Does not use the DHCP server.

● IP Address

Enter an IP address when OFF is selected for "DHCP".
For this unit, enter 4 units of the decimal number (0-255).

● Subnet Mask

Enter a subnet mask according to the network configuration when OFF is selected for "DHCP".

● Gateway

Enter the gateway address according to the network configuration when OFF is selected for "DHCP".

● DNS

Select "MANUAL" or "AUTO" to enable searching an IP address by its host name using DNS. When "OFF" is selected for "DHCP" (no use of the DHCP server), select "MANUAL" and enter the domain name and the DNS server address. If "ON" is selected for "DHCP" (use of the DHCP server), select "AUTO". When DNS is not used, select "OFF".
When "MANUAL" is selected for DNS, enter the DNS server address for "Primary" and "Secondary".

● DDNS

Select ON and OFF whether or not to use the DDNS (Dynamic Domain Name Server).
Selecting ON is available only when "MANUAL" or "AUTO" is selected for "DNS".
When "ON" is selected, perform the following.
User Name: Enter the user name registered in "DDNS".
Password: Enter the password for the user entered in "User Name".
Access Interval: Select an interval to update DNS from the following.
10 m/30 m/1 h/6 h/24 h

● Host Name

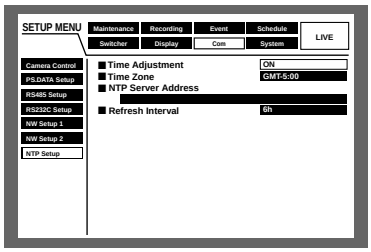
Enter the host address registered in DDNS.
Enter alphanumeric characters of 255 or less, and also hyphen (-) is available for the host name.

● Domain Name

Enter the domain name of this unit.
Enter alphanumeric characters of 255 or less, and also hyphen (-) is available for the domain name.

⑦ [NTP Setup] Time adjustment of network

Perform the following settings for time adjustment.



● Time Adjustment

Select ON and OFF whether or not to adjust the time with reference to the NTP server.
ON: Adjusts time with reference to the NTP server.
OFF: Does not function.

● Time Zone

Set the time zone in accordance with a place of use when using the NTP server for time adjustment.

● NTP Server Address

Enter the NTP server address when using the NTP server for time adjustment.

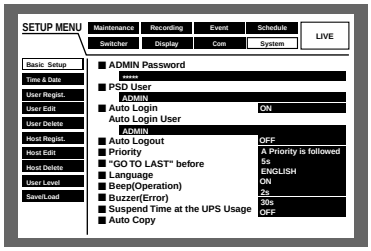
● Refresh Interval

Select an interval of time inquiry to be transmitted to the NTP server from the following.
1 h/2 h/6 h/12 h/24 h

■ [System] Settings on System

Perform the following system settings required to operate this unit.

① [Basic Setup] Basic system settings



Perform the following settings for basic operation.

● ADMIN Password

Set the password for an administrator.
Enter 4-32 alphanumeric characters.
It is the same way to enter, insert and delete characters as for text information attached to image. Refer to page xx.

● PSD User

When a user operate a controller compatible with PS·Data, operation will be restricted by priority and operational level of PSD user.
PSD user should be one of the users registered in this unit.

● Auto Login

Select ON and OFF whether or not to activate the auto login function when turning the power of this unit on.
ON: Activates the auto login function.
OFF: Does not activate the auto login function. It is necessary to perform the login operation every time starting up this unit.

● Auto Login User

When ON is selected for "Auto Login", the registered auto login user can login the unit automatically.
An auto login user should be one of the users registered in this unit.

● Auto Logout

Select ON or OFF whether or not to activate the auto logout function.
When ON is selected, auto logout will be made after a specified time has passed while displaying live image without operation.
OFF: Does not activate the auto logout function.
1 m/2 m/3 m/4 m/5 m/30 m: Activates the auto logout function when the selected time has passed after login.

Important:
The auto logout function will not be activated when ON is selected for "Auto Login".
Depending on the user level of the auto login user, operable functions may be different.

● Priority

Assign operating priorities when multiple users access this unit simultaneously from the following.
A priority is followed: Operation by a user with higher priority will be performed.
Pre-priority: Operation by the first accessed user will be performed regardless of priority.
Post-priority: Operation by the last accessed user will be performed regardless of priority.

● "GO TO LAST" before

Select time to be skipped when the "GO TO LAST" button is pressed during playback from the following.
5 s/10 s/30 s/1 m/5 m

● Language

Select a language for the SETUP MENU from the following.
JAPANESE/ENGLISH/FRANCAIS/ESPANOL/DEUTSCH/ITALIANO

● Beep (Operation)

Select ON or OFF whether or not to beep the buzzer when operating the buttons.
ON: Sounds the buzzer when operating the buttons.
OFF: Does not sound the buzzer when operating the buttons.

● Buzzer (Alarm)

Select a buzzer operation at a trouble occurrence from the following.
OFF: Does not sound buzzer at a trouble occurrence.
1 s - 30 s (in 1 second step)/40 s/50 s/1 m/1 m/3 m/4 m/5 m (in 1 minute step): A buzzer will sound for the selected duration after a trouble occurred.
EXT: The buzzer will sound continuously until the "ALARM RESET" button on the front panel of the unit is pressed.

● Shutdown Time

Select a waiting time until starting the internal processing against the power outage after a outage detection signal is supplied to the unit from the following.
10 s/20 s/30 s/1 m/2 m/3 m/4 m/5 m

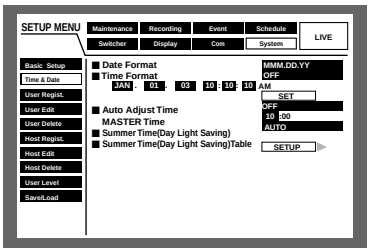
● Auto Copy

Select ON or OFF whether or not to copy recorded images to the copy area on the hard disk automatically.
OFF: Does not copy automatically.
ON: Copies recorded images to the copy area on the hard disk of this unit.

Important:
When OFF is selected, auto copy function at an event occurrence and emergency recording will not function.

② [Time & Date Setup] Setting of date and time

Perform the following settings of time and date.



● Date Format

Select a display format for date from the following.(Ex. April 1, 2003)
YY.MM.DD: 03.4.1
MMM.DD.YY: APR.1.03
DD.MMM.YY: 1.APR.03

● Time Format

Select a display format for time from the following. (Ex. 3 oÅfclock just in the afternoon)
12h: 3:00:00 PM
24h: 15:00:00

● Time Setup

Adjust the current date and time.
Enter year, month, day, hour, minute and second in order, move the cursor to "SET" and press the SET button.

● Auto Adjust Time

Select a method for auto time adjustment from the following.
When "MASTER" is selected, a signal will be supplied from the ALARM/CONTROL connector as the MASTER time (see below) at the specified time.
OFF: Does not function.
MASTER: A signal will be supplied from the ALARM/CONTROL connector on the rear and the clock of other devices will be adjusted with reference to the time of this unit.
SLAVE: A signal will be supplied to the ALARM/CONTROL connector on the rear and clock of this unit will be adjusted.

● Master Time

Specify the time when supplying a signal from the ALARM/CONTROL connector.

● Summer Time (Day Light Saving)

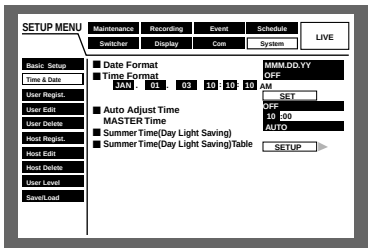
Select a way of how to switch the summer time from among the following.
OFF: Does not function.
ON: Applies the summer time.
AUTO: Applies the summer time in accordance with the setting of the summer time (see next page).

● Summer Time (Day Light Saving) Table

Do the following to specify the start time & date and end time & date of the summer time.

[Screenshot 1]

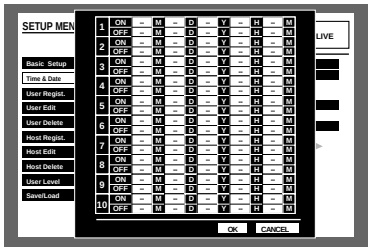
Start operation from the "Time & Date" menu.



z Move the cursor to "Summer Time (Day Light Saving) Table" using the arrows button ($TD $TC) to and press the SET button.

[Screenshot 2]

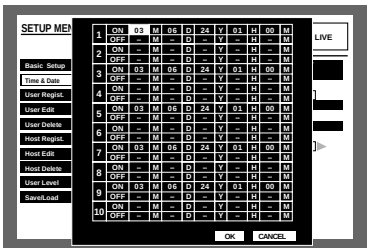
The "Summer Time (Day Light Saving) Table" will be displayed.


SETUP MEN
LIVE
Basic Setup
Time & Date
User Regist.
User Edit
User Delete
Host Regist.
Host Edit
Host Delete
User Level
Save/Load
1 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
2 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
3 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
4 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
5 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
6 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
7 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
8 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
9 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
10 ON -- M -- D -- Y -- H -- M
OFF -- M -- D -- Y -- H -- M
OK
CANCEL

x Move the cursor to enter the ON or OFF time (year, month, date) for the summer time using the arrows button.

[Screenshot 3]

The cursor will move to the selected cell for entry of the ON or OFF time for summer time.



c Rotate the jog dial to enter the ON or OFF time (year, month, date) for the summer time.

v Move the cursor to "OK" and press the SET button.
→ The ON and OFF time for the summer time will be applied and the "Summer Time (Day Light Saving) Table" will be closed.

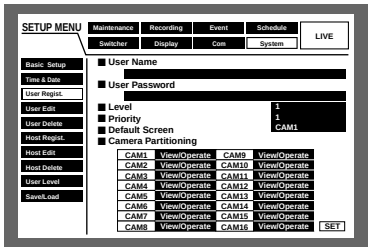
Notes:

- When moving the cursor to "CANCEL" in step 4 and press the SET button, the setting will be canceled and the " Summer Time (Day Light Saving) Table " will be closed.
- The settings for the summer time will not be applied until the SET button is pressed after moving the cursor to "OK" in the step 4.

③ [User Registration] Registration of user who operates this unit

Register user information such as user name and password.

After filling the user information, move the cursor to "SET" at the lower right on the menu and press the SET button to complete registration.



● User Name

Enter 4-32 alphanumeric characters for a user name.

It is the same way to enter, insert and delete characters as for text information attached to image. Refer to page xx.

● Password

Enter 4-32 alphanumeric characters for password.

It is the same way to enter, insert and delete characters as for text information attached to image. Refer to page xx.

● Level

Select a user level from the following.

Setting of operable functions in each level are described in "User Level" (Refer to page xx).

LV1/LV2/LV3

● Priority

Assign priority (1 (lowest) to 16 (highest) to users.

● Default Screen

Select a camera image to be displayed during the logon procedure from the following.

CAM1 - 16: Displays an image from the selected camera channel.

QUAD1 - 4: Displays images from the camera channels 1 - 4 on a 4-split screen.

QUAD5 - 8: Displays images from the camera channels 5 - 8 on a 4-split screen.

QUAD9 - 12: Displays images from the camera channels 9 - 12 on a 4-split screen.

QUAD13 - 16: Displays images from the camera channels 13 - 16 on a 4-split screen.

7 SCREEN: Displays images from the camera channels 1 - 7 on a 7-split screen.

9 SCREEN 1 - 9: Displays images from the camera channels 1 - 9 on a 9-split screen.

9 SCREEN 10 - 16 (only for WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.

10 SCREEN: Displays images from the camera channels 1 - 10 on a 10-split screen.

13 SCREEN: Displays images from the camera channels 1 - 13 on a 13-split screen.

16 SCREEN: Displays images from the camera channels 1 - 16 on a 16-split screen.

SEQ: Images will be displayed in the sequential display.

● Camera Partitioning

Select a controllable range for each camera channel from the following.

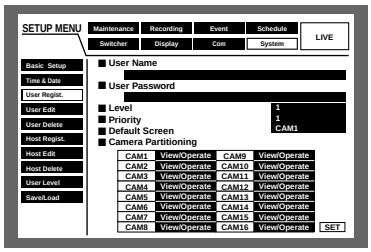
View/Operate: Displaying live images and operating camera are available.

View: Displaying live images is available but cannot operate cameras.

--: Both displaying live images and operating camera are impossible.

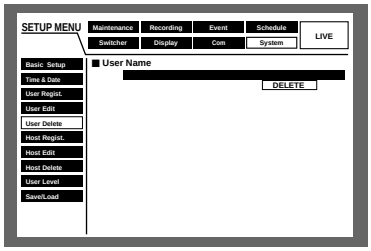
④ [User Edit] Correction of registered user information

It is possible to edit registered user information.
Move the cursor to "User Name" and rotate the jog dial to select the user name.
Registered information will be displayed.
Editing can be performed in the same way of registration. (Refer to page xx.)
Move the cursor to "EDIT" at the lower right on the menu and press the SET button to complete editing.



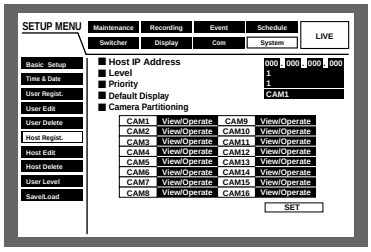
⑤ [User Delete] Deletion of registered user

It is possible to delete a registered user.
Move the cursor to "User Name" and rotate the jog dial to select the user name. Move the cursor to "DELETE" and press the SET button.
Selected user will be deleted.



⑥ [Host Registration] Registration of PC (host) accessible to this unit

Register host information of the PC that accesses the unit via a network such as LAN.
Move the cursor to "SET" at the lower right on the menu and press the SET button to complete registration.



● Host IP Address

Enter the IP address. Move the cursor to "Host IP Address" and rotate the jog dial to enter the IP address. For this unit, enter 4 units of the decimal number (0-255).

● Level

Select a user level from the following.
Setting of operable functions in each level are described in "User Level" (Refer to page xx).
LV1/LV2/LV3

● Priority

Assign priority (1 (lowest) to 16 (highest) to hosts.

● Default Screen

Select a startup display to be displayed after logon from the following.

CAM 1-16 (for WJ-HD316)/CAM 1-9 (for WJ-HD309): Displays live images from the selected camera channel on a single screen.

QUAD 1-4: Displays live images from the camera channels 1 - 4 on a 4-split screen.

QUAD 5-8: Displays live images from the camera channels 5 - 8 on a 4-split screen.

QUAD 9-12 (for WJ-HD316)/CAM 9 (for WJ-HD309): Displays live images from the camera channels 9 - 12 on a 4-split screen. (When WJ-HD309 is used, live images from only camera channel 9 will be displayed on the upper left screen of a 4-split screen.)

QUAD 13-16 (only for WJ-HD316): Displays live images from the camera channels 13 - 16 on a 4-split screen.

7 SCREEN: Displays images on a 7-split screen.

9 SCREEN 1-9: Displays images from the camera channels 1 - 9 on a 9-split screen.

9 SCREEN 10-16 (only for WJ-HD316): Displays images from the camera channels 10 - 16 on a 9-split screen.

10 SCREEN (only for WJ-HD316): Displays images on a 10-split screen.

13 SCREEN (only for WJ-HD316): Displays images on a 13-split screen.

16 SCREEN (only for WJ-HD316): Displays images on a 16-split screen.

SEQ: Images will be displayed in the sequential display.

● Camera Partitioning

Select a controllable range for each camera channel from the following.

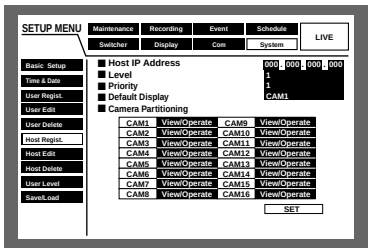
View/Operate: Displaying live images and operating camera are available.

View: Displaying live images is available but cannot operate cameras.

--: Both displaying live images and operating camera are impossible.

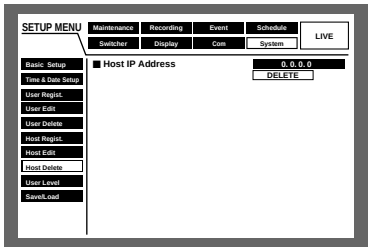
⑦ [Host Edit] Correction of registered host information

It is possible to edit registered host information.
Move the cursor to "Host IP Address" and rotate the jog dial to select the host IP address.
Registered information will be displayed.
Editing can be performed in the same way of registration. (Refer to page xx.)
Move the cursor to "EDIT" at the lower right on the menu and press the SET button to complete editing.



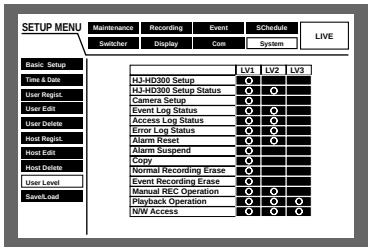
⑧ [Host Delete] Deletion of registered host

It is possible to delete a registered host.
Move the cursor to "Host Delete" and rotate the jog dial to select the host. Move the cursor to "DELETE" and press the SET button.
Selected host will be deleted.



⑨ [User Level] Setting of operation level

Set operable functions at each user level (LV 1/LV 2/ LV 3).
Rotate the jog dial to display "Åõ" to enable operation.
Leave it blank to disable operation.
Refer to the table below for each function.



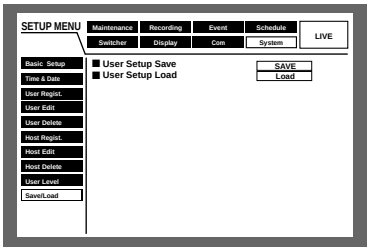
● Functions that can be set enable/disable

The following functions can be set enable/disable according to the user level.

Function	Description
HD 300 Setup	The SETUP MENU is displayed and the settings can be performed.
HD 300 Setup reference	Only SETUP MENU can be displayed. The settings cannot be performed.
Camera Setup	The setting menu of camera is displayed and the settings can be performed.
Event Log Status	The SETUP MENU is displayed and you can refer the event log. (Refer to page xx.)
Access Log Status	The SETUP MENU is displayed and you can refer the access log. (Refer to page xx.)
Error Log Status	The SETUP MENU is displayed and you can refer the error log. (Refer to page xx.)
Alarm Reset	An event operation can be canceled. (Refer to page xx.)
Alarm Suspend	An event operation can be suppressed. (Refer to page xx.)
Copy	A recorded image can be manually copied. (Refer to page xx.)
Normal Recording Erase	Image data in the normal record area of the hard disk can be manually deleted.
Event Recording Erase	Image data in the event recording area of the hard disk can be manually deleted.
Manual REC Operation	Manual recording can be started and stopped.
Playback Operation	A recorded image can be played.
N/W Access	This unit can be logged in from a PC via a network.

⑩ [Save/Load] Saving and loading of settings of the SETUP MENU

It is possible to save the settings of SETUP MENU in this unit.
It is also possible to call up saved settings. (Load)
Move the cursor to "SAVE" or "LOAD" and press the SET button.



DISPLAY SETUP MENU OF CAMERA

For operating the camera connected to this unit, it is required to set the camera function in advance.
Setup of camera function can be performed on the setup menu of the connected camera.
You can operate the camera setup menu by calling up it from this unit. Contents of camera setting menu and operations vary according to the connected cameras. For further information, refer to the operating instruction of the camera.
The following is the descriptions of how to display the camera setting menu.

z Press the camera selection button for a desired camera channel and the SET button simultaneously.
→The camera setup menu will be displayed.

x Press any one of the PAN/TILT button, the ZOOM /FOCUS button, the IRIS button and the PRESET/ AUTO button to complete the camera setting.

■ Notes on hard disk

Camera images are recorded into the built-in hard disk of this unit.
There are two hard disks equipped in this unit. In case that one of them becomes out of order during recording, it is possible to keep on recording with another hard disk (mirror function).
The internal hard disk of this unit is virtually divided into 4 to manage the hard disk.

Normal recording area: An area into which images are recorded at other than event occurrence such as manual recording.

Event recording area: An area into which images are recorded at event occurrence.

Copy area: An area into which copy data is stored.

Pre-recording area: An area into which pre-recording images are recorded.

It is possible to check the available disk space for each area on "Disk Info." of "Maintenance" on the SETUP MENU.(Refer to page xx.)
Operations for the hard disk drive such as initialization (formatting) of the hard disk drive in the unit or the extension unit, or mirroring, etc., can be performed in the "HDD DISK MENU". (Refer to page xx.)

Note: It is necessary to make either the normal recording area or the event record area. If the normal recording area is not created, manual recording images and scheduled recording images are recorded into the event recording area. If the event recording area is not created, event recording images and emergency recording images are recorded into the normal recording area.

■ How to replace the built-in hard disk

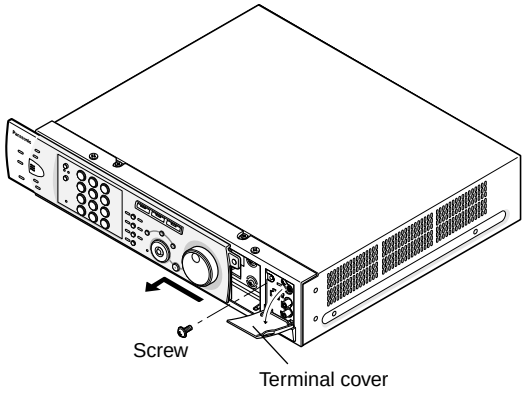
It is possible to replace the hard disk drive regardless of the power on /off of the unit.
However, the procedures of replacement is different.
Refer to the operating instructions for the extension unit when replacing the hard disk in the extension unit.

When replacing the hard disk drive after turning the power of the unit off

z Turn the power of the unit off and detach the power plug from the outlet.

x Do the following to replace the hard disk drive.

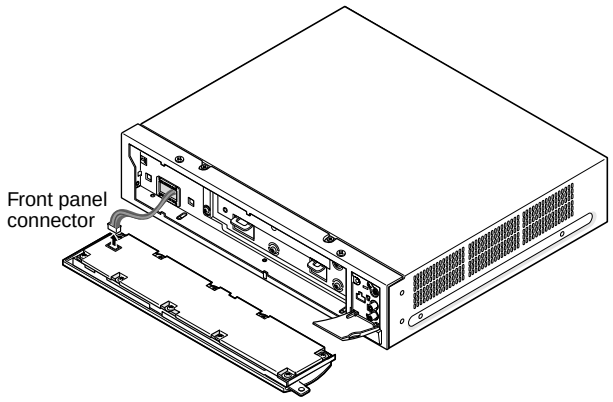
1. Open the connectors cover on the front panel and remove the fixing screws.
   Detach the front panel by sliding it after removing the screws.



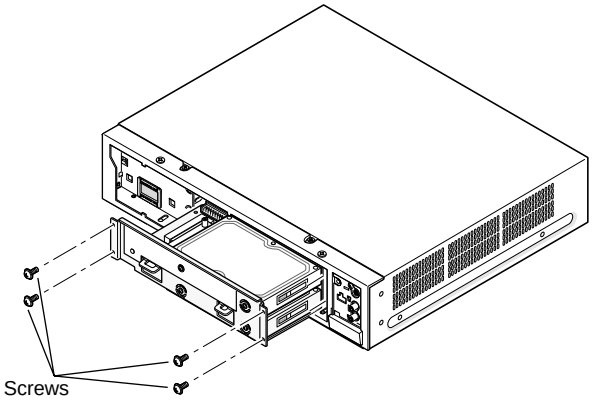
Important:

- Do not detach the cable connecting between the unit and the front panel while the HDD status indicators are still being lit or until 30 seconds passed after the HDD status indicators went off.
- Protect the hard disk drives from static electricity.
- Do not stack them, nor keep them upright.
- Do not use electric screwdriver to fix them. (Tightening torque: Approx. 0.49 N · m (5 kgf · cm))
- Avoid the rapid change of the temperature/humidity to prevent condensation. (Acceptable change: within 15 °C/h (59 °F/h))
- Set all the hard disk drives as master using the jumper pin.

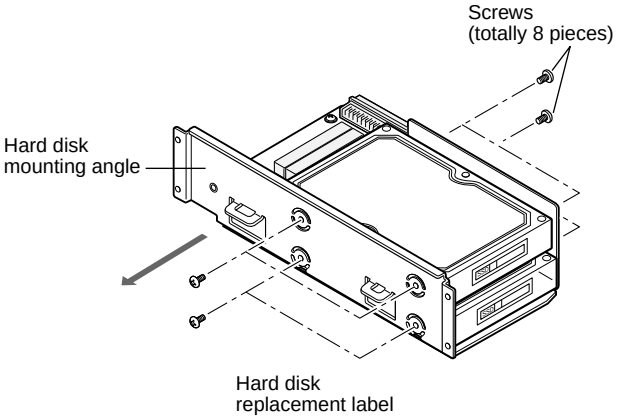
2. Remove the cable from the front panel.



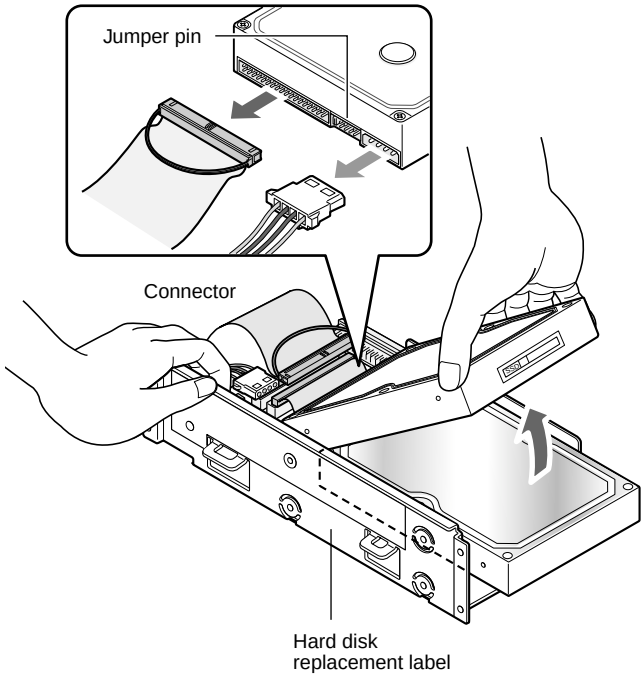
3. Remove the screws fixing the mounting unit, and then pull the mounting bracket toward you.



4. Remove the screws fixing the hard disk drive.
   First, remove the four screws fixing upper side of the hard disk drive while holding the bottom side of the hard disk drive to prevent dropping the hard disk down. Then, remove the four screws fixing the lower side of the hard disk drive.



5. Remove the connector from the hard disk drive first, and then remove the hard disk drive from the hard disk mounting bracket.

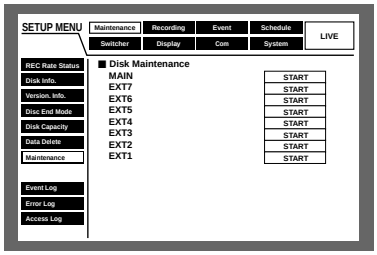


6. Install new hard disk drive in the reverse order of detaching the hard disk drive.

c After replacing the hard disk drive, insert the power plug into the outlet and turn the power of the unit.
→ The "HDD DISK MENU" will be displayed automatically after the restart.

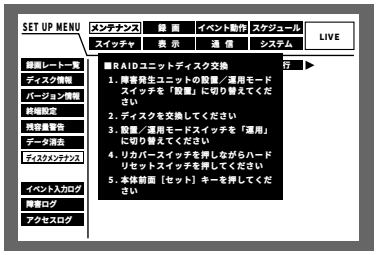
When replacing the hard disk drive without turning the power of the unit off

z Set the unit to the disk maintenance mode using the "Maintenance" of "Maintenance".
→ The "HDD DISK MENU" will be displayed and the unit becomes enable to replace hard disk.

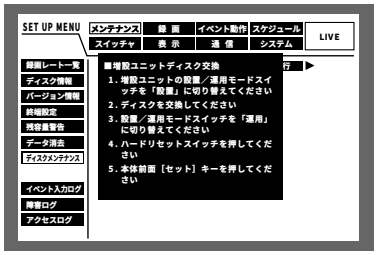


x Move the cursor to select the hard disk drive to be replaced and press the SET button.
→ The descriptions of how to replace the hard disk will be displayed.

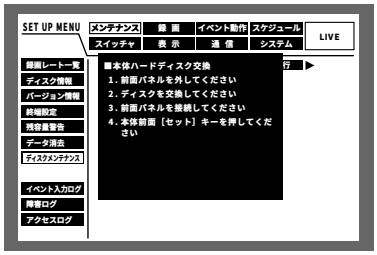
<selected extension unit in the RAID mode>



<selected extension unit in the HDD mode>



<selected the built-in hard disk>



c Replace the hard disk by following the displayed descriptions.
After this step, the following steps are the descriptions of how to replace the built-in hard disk of this unit.
Refer to the operating instructions of the extension unit when replacing the hard disk in the extension unit.

v Replace the hard disk in the same way as described from step 2 (1- 6) of “When replacing the hard disk drive after turning the power of the unit off”.

b Press the SET button after completing the replacement of the hard disk drive.

n When the built-in hard disk drive of this unit or the hard disk drive of the extension unit in the SINGLE mode is replaced, restart the unit.
After the restart, the "HDD DISK MENU" will be displayed automatically.
(When the hard disk drive of the extension unit in the RAID 5 mode is replaced, this procedure ended in step 5.)

■ About the HDD DISK MENU

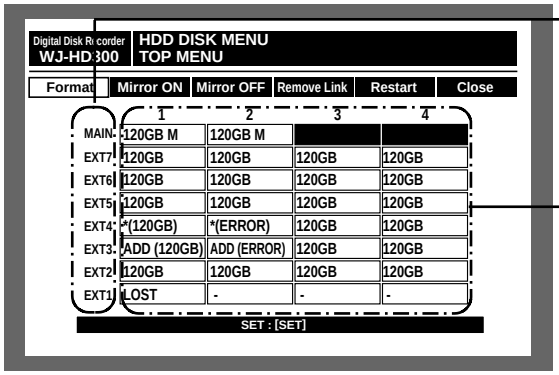
The operations regarding the hard disk can be performed with displaying the "HDD DISK MENU" on the monitor 2.
The "HDD DISK MENU" will be displayed when the SET button is pressed while displaying the system check complete window.
The "HDD DISK MENU" will also displayed automatically after the replacing or removing the hard disk.

The following operations can be performed on the "HDD DISK MENU".

Setting item	Description	Page
Format	Formats (initializes) the hard disk. It can also change setting values for the recording area respectively. Mirroring also can be started on this menu.	xx
Mirror recovery	Recovers the mirrored hard disk.	xx
Mirror cancel	Cancels mirroring.	xx
Remove Link	Removing the hard disk drive from the system logically.	xx
Restart	Restarts this unit.	xx
Exit	Close the "HDD DISK MENU".	xx

■ Display of the HDD DISK MENU Disk configuration menu screen

Information of the hard disk drive of the unit or the extension unit will be displayed on the "HDD DISK MENU".



Main unit/extension unit

Information about hard disk located in the main unit and extension unit

120 GB: Indicates the hard disk capacity (disk existed when started up last time)

120 GB M: Indicates the hard disk capacity (mirrored disk existed when started up last time)

ADD (120 GB): Indicates that this hard disk is newly mounted at this startup, but it was not mounted last time. Those parenthesized numbers indicate the capacity of the hard disk.

ADD (ERROR): Indicates that this hard disk is newly mounted at this startup, but it was not mounted last time. Then, an error is detected in the hard disk.

*** (120 GB):** Indicates that a different hard disk from the one existed at the last startup is mounted. Those parenthesized numbers indicate the capacity of the hard disk.

*** (ERROR):** Indicates that a different hard disk from the one existed at the last startup is mounted, and an error is detected in the hard disk.

LOST: Indicates that a position where a hard disk was mounted at the last startup has no hard disk.

–: Indicates that a hard disk is not mounted this time as well as at the last startup.

ERROR: Indicates that the hard disk had failed to be initialized.

Important:

- It is impossible to operate the unit when there is a hard disk with indications of * (capacity), * (ERROR), LOST or ERROR. In this case, remove the relevant hard disk. (Refer to page xx.)
- Hard disks with ADD (capacity) indication are not initialized yet.
  First, initialize them. It is impossible to record images on it nor to use as a copy destination without initialization.

Note: The displayed available disk space on this menu will not include the space required for data management. Therefore, the undercounted available disk space will be displayed. It is possible to display information about the recording area (allocated disk size for normal recording area, event recording area, copy area) by pressing the SEUP/ESC button while displaying the "TOP MENU" of the "HDD DISK MENU".

■ RAID 5 Function of the Extension Unit

Summary of RAID 5 function (Redundant Arrays for Independent Disks, independent data disks with distributed parity blocks)

RAID level 5 regards 3 or more drives as one drive, and it is possible to read data by attaching error correction data even though one of the drives is broken automatically. (It is impossible to read data if 2 or more drives are broken.)
RAID level 5 requires a minimum of 3 drives to implement.
When using the RAID function, logical disk size of the extension unit will be as below.
Logical disk size = Smallest size of the disk among the disks in the extension unit x (Number of the disks in the extension unit - 1)

Important:

- When connecting two extension units or more with this unit, it is impossible to connect the extension unit with the RAID 5 function and the one without the RAID 5 function at the same time.
- When the RAID 5 function is used, it is impossible to use two hard disks in this unit. The recorded pictures in those disks will not be deleted.

● Setup/cancel the RAID 5 function

Do the followings to set or cancel the RAID 5 function with an extension unit.
Refer to the operating instruction of the extension unit for further information.

z Make sure that the power of this unit and all of the extension units to be connected are OFF.

x To set the RAID 5 function, set the mode switch of the extension unit to "RAID 5".
To cancel the RAID 5 function, set the mode switch of the extension unit to "SINGLE".

c Make sure that the HDD POWER switch of the extension unit is "ON".

v Turn the power of the extension unit on.

b Turn the power of this unit on.
→ The "HDD DISK MENU" will be displayed automatically after the system check when the hard disk configuration had been changed such as when an extension unit is newly connected.

Important:

- When the RAID 5 function is set or canceled, all data on each hard disk of the extension unit will be deleted.
- When turning the power on, turn the power of the extension unit first, and then turn the power of this unit on. Otherwise, the extension unit may not work correctly.

■ Hard Disk Initialization

It is necessary to initialize the hard disk at the following conditions.

- When replacing the hard disk of this unit
- At the first operation after connecting the optional extension unit to this unit

Important:

If the hard disk is initialized, all of the recorded images will be deleted.

● Initialization of all hard disk (unit)

All hard disks including the internal hard disks and the hard disks in extension units will be initialized. All units will be initialized at the RAID function activated.

z Turn on peripheral devices such as extension unit connected to this unit.

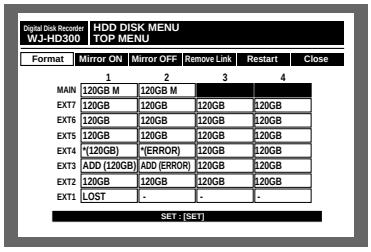
x Turn on this unit and press the [SET] button after completion of system check.

Note:

- If the hard disk is changed or taken out, the top page of the disk configuration menu automatically appears.

[Screenshot 1]

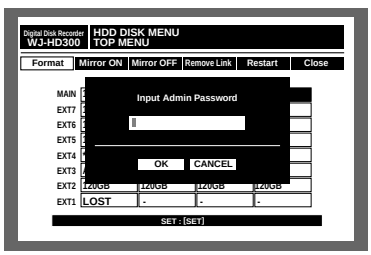
The top page of the disk configuration menu appears.



c Press the arrows button (A and B) to move the cursor to "Format" and press the [SET] button.

[Screenshot 2]

The password entry screen appears.

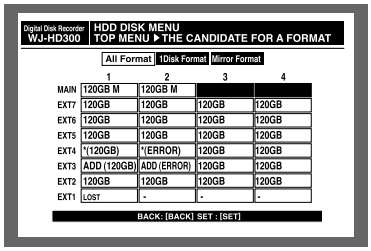


v Press the camera selection button ([1]-[10/0]) and type the password of Admin.

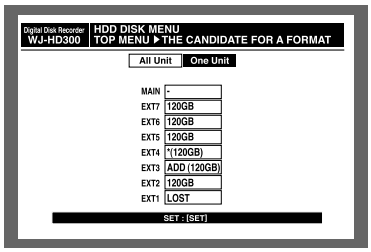
b Press the arrows button (C and D) to move the cursor to "OK" and press the [SET] button.

[Screenshot 3]

The format screen appears.


Digital Disk Recorder WJ-HD300
HDD DISK MENU
TOP MENU ▶THE CANDIDATE FOR A FORMAT
All Format
1Disk Format
Mirror Format
1 2 3 4
MAIN 120GB M 120GB M
EXT7 120GB 120GB 120GB 120GB
EXT6 120GB 120GB 120GB 120GB
EXT5 120GB 120GB 120GB 120GB
EXT4 *(120GB) *(ERROR) 120GB 120GB
EXT3 ADD (120GB) ADD (ERROR) 120GB 120GB
EXT2 120GB 120GB 120GB 120GB
EXT1 LOST - - -
BACK: [BACK] SET : [SET]

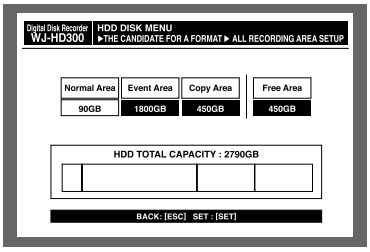
n Press the arrows button (A and B) to move the cursor to "All Format" and press the [SET] button.
Select "All Unit" at the RAID function activated.



<Screen at RAID function activated>

[Screenshot 4]

The setting screen of recording area appears.

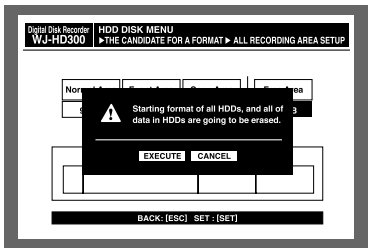


m Press the arrows button (A and B) to select a recording area and rotate the jog dial to set the capacity of selected recording area.
For deciding the capacity of two or more recording areas, repeat this procedure.

, Press the [SET] button after setting.

[Screenshot 5]

The format check screen appears.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶THE CANDIDATE FOR A FORMAT▶ ALL RECORDING AREA SETUP
Starting format of all HDDs, and all of data in HDDs are going to be erased.
EXECUTE
CANCEL
BACK: [ESC] SET : [SET]

. Press the arrows button (A and B) to move the cursor to "EXECUTE" and press the [SET] button.
→ Formatting starts and the format result screen appears. The top page of the disk configuration menu automatically resumes after displaying the format result screen.

● Initialization of selected hard disk (unit)

You can initialize selected hard disk (unit at the RAID function activated) by following the procedure below.

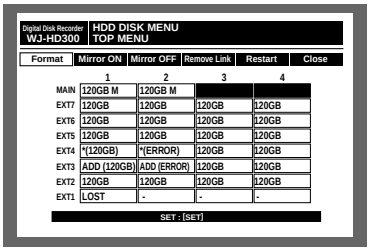
z Turn on peripheral devices such as extension unit connected to this unit.

x Turn on this unit and press the [SET] button after completion of system check.

Note: If the hard disk changed or taken out, the top page of the disk configuration menu automatically appears.

[Screenshot 1]

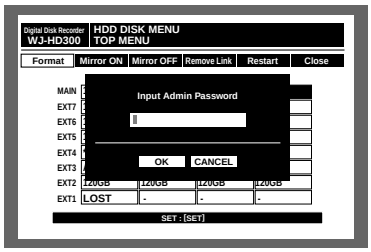
The top page of the disk configuration menu appears.



c Press the arrows button (A and B) to move the cursor to "Format" and press the [SET] button.

[Screenshot 2]

The password entry screen appears.

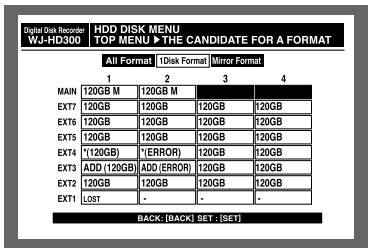


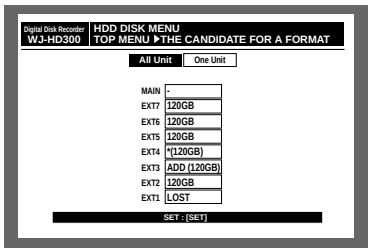
v Rotate the jog dial and type the password of Admin.
You can use the camera selection buttons (1-10/0) for number entry.

b Press the arrows button (C and D) to move the cursor to "OK" and press the [SET] button.

[Screenshot 3]

The format screen appears.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
TOP MENU ▶THE CANDIDATE FOR A FORMAT
All Format
1Disk Format
Mirror Format
1 2 3 4
MAIN 120GB M 120GB M
EXT7 120GB 120GB 120GB 120GB
EXT6 120GB 120GB 120GB 120GB
EXT5 120GB 120GB 120GB 120GB
EXT4 *(120GB) *(ERROR) 120GB 120GB
EXT3 ADD (120GB) ADD (ERROR) 120GB 120GB
EXT2 120GB 120GB 120GB 120GB
EXT1 LOST - - -
BACK: [BACK] SET : [SET]

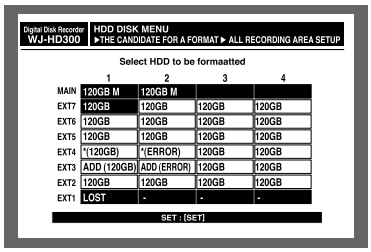


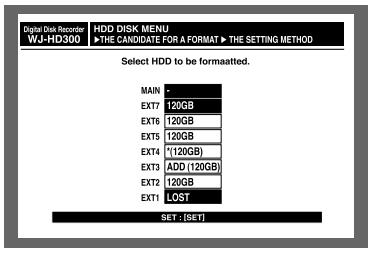
<Screen at RAID function activated>

n Press the arrows button (A and B) to move the cursor to "1 Disk Format" and press the [SET] button.
Select "１ユニット" at the RAID function activated.

[Screenshot 4]

A screen on which you can select a hard disk (unit) appears.


Digital Disk Recorder WJ-HD300
HDD DISK MENU
►THE CANDIDATE FOR A FORMAT ► ALL RECORDING AREA SETUP
Select HDD to be formaatted
1 2 3 4
MAIN 120GB M 120GB M
EXT7 120GB 120GB 120GB 120GB
EXT6 120GB 120GB 120GB 120GB
EXT5 120GB 120GB 120GB 120GB
EXT4 *(120GB) *(ERROR) 120GB 120GB
EXT3 ADD (120GB) ADD (ERROR) 120GB 120GB
EXT2 120GB 120GB 120GB 120GB
EXT1 LOST - - -
SET : [SET]

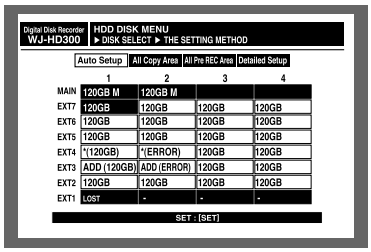


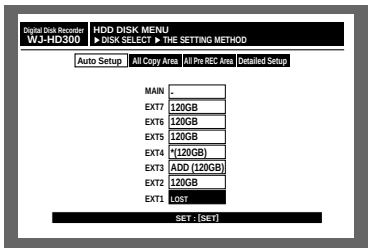
<Screen at RAID function activated>

m Press the arrows button (A, B, C and D) to move the cursor to the hard disk (unit) to be initialized and press the [SET] button.

[Screenshot 5]

A screen on which you can select a method of capacity setting for recording area appears.


Digital Disk Recorder WJ-HD300
HDD DISK MENU
▶ DISK SELECT ▶ THE SETTING METHOD
Auto Setup All Copy Area All Pre REC Area Detailed Setup
1 2 3 4
MAIN 120GB M 120GB M
EXT7 120GB 120GB 120GB 120GB
EXT6 120GB 120GB 120GB 120GB
EXT5 120GB 120GB 120GB 120GB
EXT4 *(120GB) *(ERROR) 120GB 120GB
EXT3 ADD (120GB) ADD (ERROR) 120GB 120GB
EXT2 120GB 120GB 120GB 120GB
EXT1 LOST - - -
SET : [SET]



<Screen at RAID function activated>

, Press the arrows button (A and B) to select a method of record area setting from among the following and press the [SET] button.

Auto Setup: Assigns each record area at the same ratio as the existing hard disks. (→ to step 9)

All Copy Area: Sets the whole selected hard disk (unit) to a copy area. (→ to step 9)

All Pre REC Area: Sets the whole selected hard disk (unit) to a pre-record area. (→ to step 10)

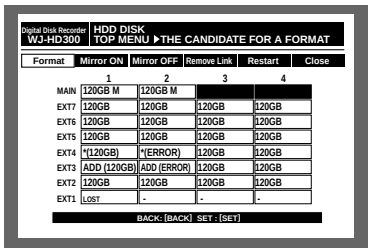
Detailed Setup: Sets each record area individually. (→ to step 11)

Important:

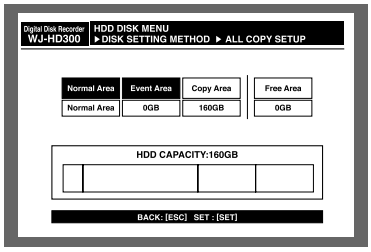
If the hard disk of this unit is selected, "All Pre REC Area" is not selectable.

[Screenshot 6]

The setting screen of each record area appears.


Digital Disk Recorder WJ-HD300
HDD DISK
TOP MENU ▶THE CANDIDATE FOR A FORMAT
Format Mirror ON Mirror OFF Remove Link Restart Close
1 2 3 4
MAIN 120GB M 120GB M
EXT7 120GB 120GB 120GB 120GB
EXT6 120GB 120GB 120GB 120GB
EXT5 120GB 120GB 120GB 120GB
EXT4 *(120GB) *(ERROR) 120GB 120GB
EXT3 ADD (120GB) ADD (ERROR) 120GB 120GB
EXT2 120GB 120GB 120GB 120GB
EXT1 LOST - - -
BACK: [BACK] SET : [SET]

<Screen at "Auto Setup" selected>

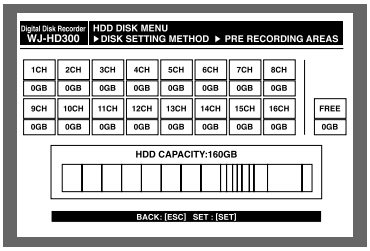

Digital Disk Recorder WJ-HD300
HDD DISK MENU
▶DISK SETTING METHOD ▶ ALL COPY SETUP
Normal Area Event Area Copy Area Free Area
Normal Area 0GB 160GB 0GB
HDD CAPACITY:160GB
BACK: [ESC] SET : [SET]

<Screen at "All Pre REC Area" selected>

. Confirm the capacity of each record area and press the [SET] button.
→ The format check screen appears.
(→ to step 13)

[Screenshot 7]

The setting screen of pre-record area appears.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▸DISK SETTING METHOD ▸ PRE RECORDING AREAS
1CH 2CH 3CH 4CH 5CH 6CH 7CH 8CH
0GB 0GB 0GB 0GB 0GB 0GB 0GB 0GB
9CH 10CH 11CH 12CH 13CH 14CH 15CH 16CH
0GB 0GB 0GB 0GB 0GB 0GB 0GB 0GB
FREE
0GB
HDD CAPACITY:160GB
BACK: [ESC] SET : [SET]

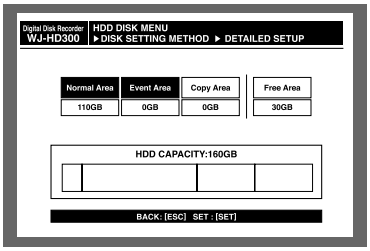
／0 Press the arrows button (A, B, C and D) to select camera CH for pre-recording and rotate the jog dial to decide the capacity of selected pre-record area.
For deciding the capacity of pre-recording with two or more camera CHs, repeat this procedure.
Press the [SET] button after setting.
→ The format check screen appears. (→ to step 13)

Important:

The camera CH that was already assigned to a pre-record area with a different hard disk (unit) is not selectable.

[Screenshot 8]

The setting screen of record area appears.

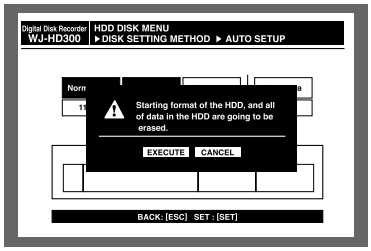


／1 Press the arrows button (A and B) to select a recording area and rotate the jog dial to decide the capacity of selected recording area.
For deciding the capacity of two or more recording areas, repeat this procedure.

／2 Press the [SET] button after setting.

[Screenshot 9]

The format check screen appears.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▸DISK SETTING METHOD ▸ AUTO SETUP
Starting format of the HDD, and all of data in the HDD are going to be erased.
EXECUTE
CANCEL
BACK: [ESC] SET : [SET]

／3 Press the arrows button (A and B) to move the cursor to "EXECUTE" and press the [SET] button.
→ Formatting starts and the top page of the disk configuration menu resumes.

■ Setting on Mirroring

Mirroring is a function that camera images are recorded into 2 hard disks simultaneously. In case that one hard disk fails, normal image data stays in the other hard disk. The credibility of disk can be enhanced.
It is recommended to activate the mirroring function for the first use of this unit. If the mirroring function is activated when images are stored in the hard disk, recorded images will be deleted.

Note: If the hard disk is changed or taken out, the top page of the disk configuration menu automatically appears.

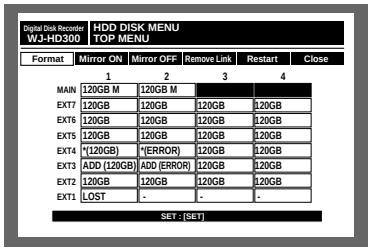
● Start of mirroring

You can activate the mirroring function by following the procedure below.

z Turn on this unit and press the [SET] button after completion of system check.
Note: If the hard disk is taken out, the top page of the disk configuration menu automatically appears.

[Screenshot 1]

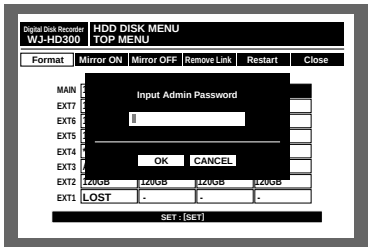
The top page of the disk configuration menu appears.



x Press the arrows button (A and B) to move the cursor to "Format" and press the [SET] button.

[Screenshot 2]

The password entry screen appears.

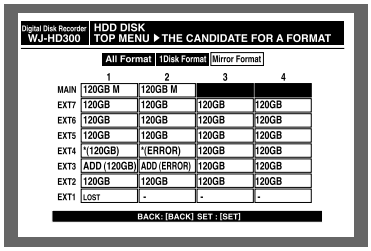


c Press the camera selection button and type the password.

v Press the arrows button (C and D) to move the cursor to "OK" and press the [SET] button.

[Screenshot 3]

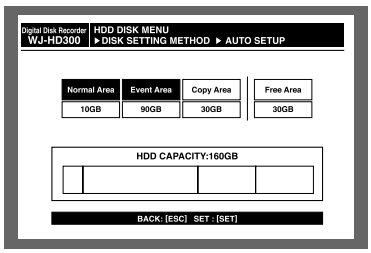
The format screen appears.



b Press the arrows button (A and B) to move the cursor to "Mirror Format" and press the [SET] button.

[Screenshot 4]

The setting screen of mirror disk record area appears.

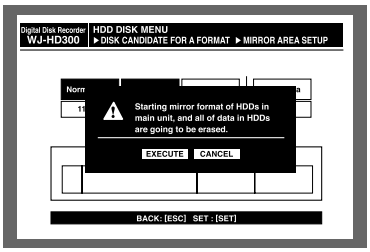


n Press the arrows button (A, B, C and D) to select a recording area and rotate the jog dial to set the capacity of selected recording area.
For deciding the capacity of two or more recording areas, repeat this procedure.

m Press the [SET] button after setting.

[Screenshot 5]

The format check screen appears.


Digital Disk Recorder
WJ-HD300
HDD DISK MENU
▶DISK CANDIDATE FOR A FORMAT ▶MIRROR AREA SETUP
Starting mirror format of HDDs in main unit, and all of data in HDDs are going to be erased.
EXECUTE
CANCEL
BACK: [ESC] SET : [SET]

, Press the arrows button (A and B) to move the cursor to "EXECUTE" and press the [SET] button.
→ Mirroring starts and the top page of the disk configuration menu resumes.

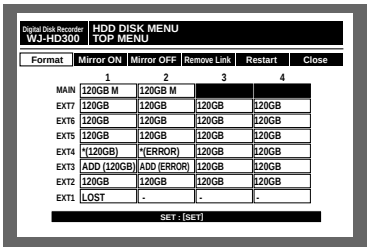
● Cancel of mirroring

You can cancel the mirroring function by following the procedure below.

z Turn on this unit and press the [SET] button after completion of system check.
Note: If the hard disk is taken out, the top page of the disk configuration menu automatically appears.

[Screenshot 1]

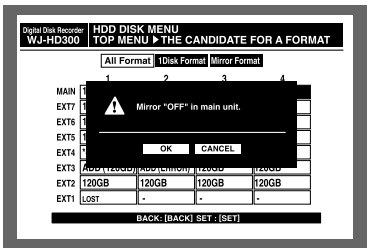
The top page of the disk configuration menu appears.



x Press the arrows button (A and B) to move the cursor to "Mirror OFF" and press the [SET] button.

[Screenshot 2]

A message to confirm mirror cancellation appears.



c Press the arrows button (A and B) to move the cursor to "OK" and press the [SET] button.
→ The mirroring function is canceled.
Note: One of two hard disks that consist of mirroring is marked with "* (capacity)" on the top page of the disk configuration menu after mirror cancellation.

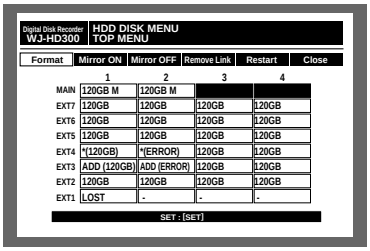
● Hard disk recovery

In case that one hard disk fails while the mirroring function works or other cases, you can set the disk so that the faulty disk will be recovered after hard disk replacement.

z Turn on this unit and press the [SET] button after completion of system check.
Note: If the hard disk is changed or taken out, the top page of the disk configuration menu automatically appears.

[Screenshot 1]

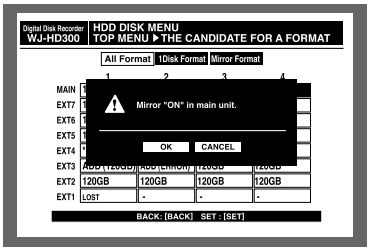
The top page of the disk configuration menu appears.



x Press the arrows button (A and B) to move the cursor to "Mirror ON" and press the [SET] button.

[Screenshot 2]

A message to confirm mirror recovery appears.



c Press the arrows button (A and B) to move the cursor to "OK" and press the [SET] button.
Hard disk recovery is executed during operation after exiting from the disk configuration menu.

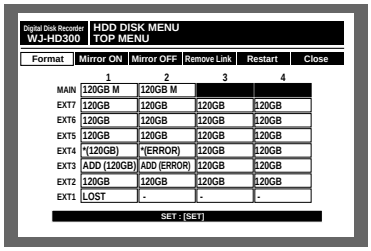
■ Logical Delink and Reconfiguration of Hard Disk (Remove Link)

Logical delinking of hard disk (Remove Link) is a situation where a hard disk is not physically removed but a hard disk is not recognized. You may want to use delinking in the situation that a hard disk in this unit or an add-on unit fails (hard disk marked with "*", "LOST" or "ERROR"), and you would like to disconnect the hard disk temporarily and keep on operating.
You can activate the delinking function by following the procedure below.

z Turn on this unit and press the [SET] button after completion of system check.
Note: If the hard disk is taken out, the top page of the disk configuration menu automatically appears.

[Screenshot 1]

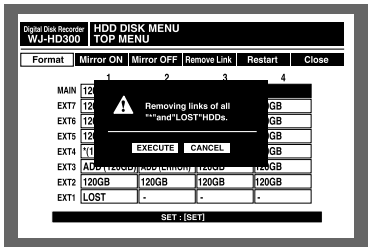
The top page of the disk configuration menu appears.



x Press the arrows button (A and B) to move the cursor to "Remove Link" and press the [SET] button.

[Screenshot 2]

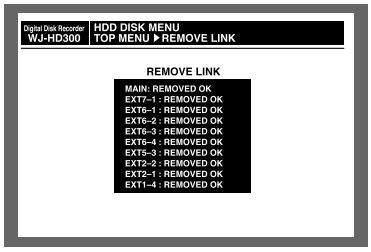
A message to confirm delinking appears.



c Move the cursor to "OK" and press the [SET] button.
→ The remove link function is executed and the check screen appears.

[Screenshot 3]

The remove link function is executed and the check screen appears.



v The top page of the disk configuration menu automatically resumes after completion of remove link.

SERIAL (RS232C) PORT COMMAND REFERENCE

■ SERIAL (RS232C) Communication Protocol

SERIAL (RS232C) means the EIA standard number of an interface for serial data transfer. With the SERIAL (RS232C) interface, you can control functions of this unit by transferring the specified commands from a personal computer (PC) to this unit.

Notes:

- This unit does not support the communication converted between the SERIAL (RS232C) and USB interface.
- When controlling the unit with the SERIAL (RS232C) interface, the following parameters should be identical between the communication devices.
  The setting is available in "SETUP MENU" – "Communication" – " SERIAL (RS232C) Setting".
  Baud Rate
  Data Bit
  Parity
  Stop Bit

■ Command Format

The following pages detail how to write the commands.

1. The following details how to write the commands

Code	[STX] AD [Unit address of this unit] [Transmission Command] : [p] [ETX]
ASCII	(02H) ( ) – ( ) (03H)

STX: This shows the data start. STX (ASCII code: 02h) is always prefixed to data. h shows hexadecimal digit.
Transmission command: A command shown in the Command List is designated.
ETX: This shows the data end. ETX (ASCII code: 03h) is always prefixed to data.
The character code is ASCII.

When a command needs parameter, colon (:) is used for dividing the command and parameter. The following is how to write the commands when two or more commands are specified.

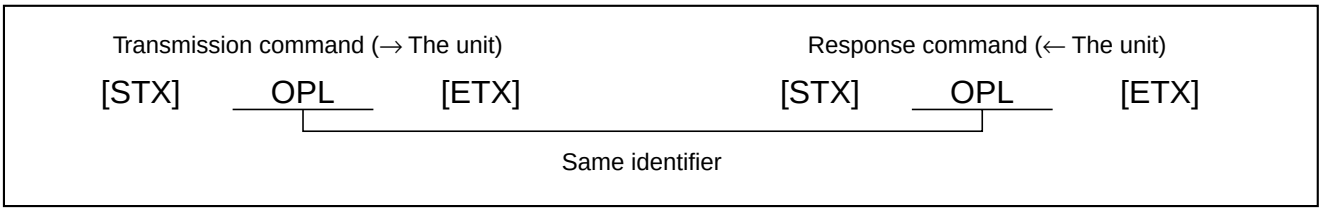
Code	[STX] AD [Unit address of this unit] [Transmission Command] : [p1] : [p2] [ETX]

2. Response Command (from the Unit to the PC)

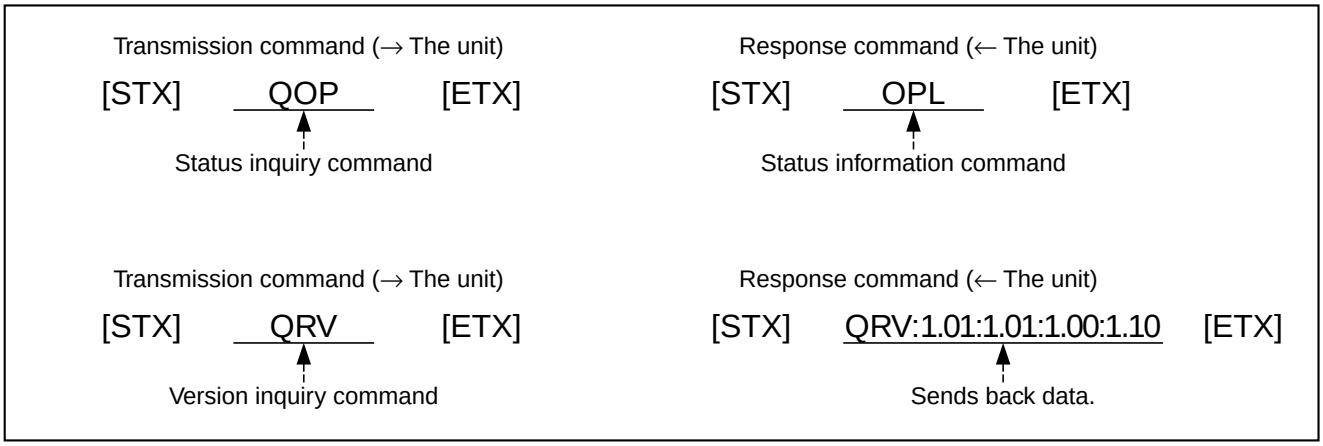
The unit sends back the response command for the transmission command from the PC.

- **When the reception was completed successfully**
  The response command differs between when an ANSWER command (sending back the status or data) is required or when not required.

- **When no ANSWER command is required**
  The unit sends back the same identifier as that in the transmission command, as shown in the figure.



- **When an ANSWER command is required**
  The unit sends back the status or data, as shown in the figure.



- **About ACK code**
  After receiving an command from the PC, the unit sends back the ACK code to the PC in 20 ms or less.
  [ACK] = Reception succeeded (ASCII code: 06H)
  After the ACK code sending back and the command processing has completed, the unit sends back the response command to the PC.

Example:
These are examples for the following operations.
1. Login with the user name of "ADMIN" and with password of "12345".
2. Display images from the camera channel 1 on the monitor 2.
3. Start playback from the point of January 1 2003, 3:00 p.m.
4. Logout

(1) (This unit -> PC) Login
[STX]AD001;OLI:ADMIN[SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP]:12345[SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP] [SP][ETX]

When receiving the command above, this unit will start the login procession of the user name of "ADMIN".

(2) (This unit -> PC) Response against (1).
[STX]AD001;OLI:1[ETX]

(3) (PC -> This unit) Select the monitor 2
[STX]AD001;OMS:001[ETX]

(4) (This unit -> PC) Response against (3).
[STX]AD001;OLI:1[ETX]

(5) (PC -> This unit) Display images from the camera channel 1.
[STX]AD001;OCS:00001[ETX]

(6) (This unit - > PC) Response against (5).
[STX]AD001;OCS:00002[ETX]

(7) (PC -> This unit) Playback from the designated time point.
[STX]AD001;ZTP:20030101150000[ETX]

When receiving the command above, this unit will start playback from the point of January 1 2003, 3:00 p.m.

(8) (This unit - > PC) Response against (7).
[STX]AD001;ZTP: 200301011500000[ETX]

(9) (PC -> This unit) Logout.
[STX]AD001;OLO [ETX]

When receiving the command above, the user logged in via serial (RS232C) (ADMIN) will logout.

(10) (This unit - > PC) Response against (9).
[STX]AD001;OLO[ETX]

Note: The character code of [STX], [ETX] and [SP] are as follows.
[STX]: 02h
[ETX]: 03h
[SP] (space): 20h

3. Reception Error

The response command differs between the reception error and parameter error.

- **Communication error (Reception error)**
  When the unit cannot properly receive the command due to the communication error, the unit immediately sends back the NACK code to the PC. After clearing the receive buffer, the unit enters the wait state until receiving the following [STX] command.

[NCK]◯ = Reception failed (ASCII code: 15H)

--------- Reason for the communication error
1: Parity error (ASCII code: 31H)
2: Framing error (ASCII code: 33H)
3: Overrun error (ASCII code: 34H)

- **Parameter error**
  When the unit cannot properly process the received command, the unit sends back an error code to the PC. After clearing the receive buffer, the unit enters the wait state until receiving the following [STX] command.

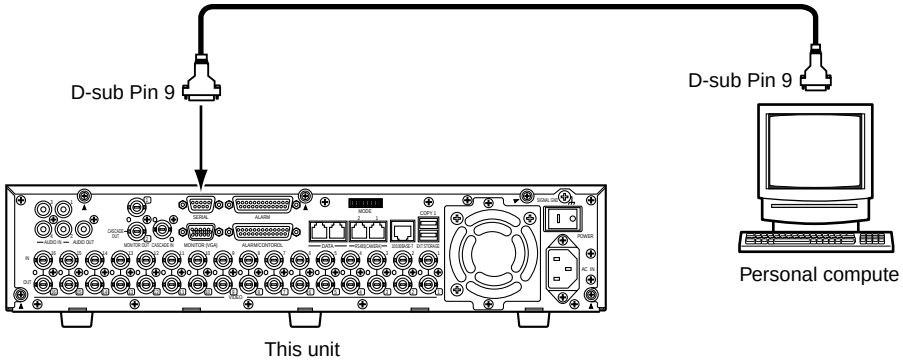
ER◯ [ETX] =Error

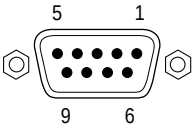
--------- Reason for the error
001: Command invalid (There is no associated command.)
002: Parameter invalid (The number, digit, or range of the command parameters is incorrect.)
003: Command invalid (The unit does not support the operation mode.)
E: Command error (ASCII code: 45H)

- If the unit receives another command during the response, the unit will respond to the command after processing the current response.
- If the unit received the [STX] command again before receiving the [ETX] command, the unit will clear the internal buffer. Then, the unit will process the data following to the [STX] command. (The commands received before the second [STX] command will be canceled.)
- The internal buffer will be cleared when it fills up.*

4. PC Connection Example

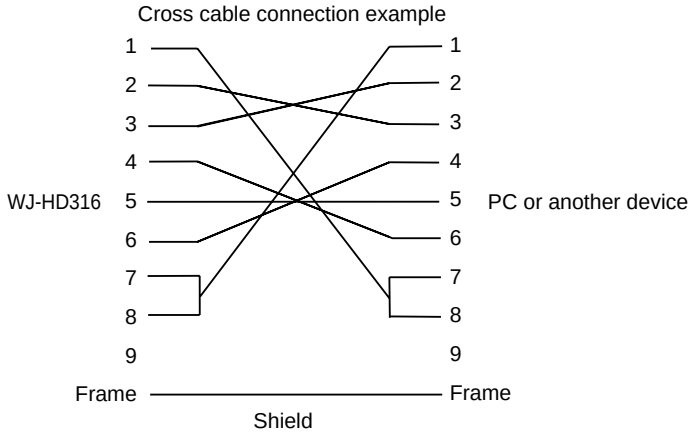
RS-232C crossing cable is used for connection between the unit and PC. (Refer to the following page for cable specification.)





WJ-HD316 Rear View

Pin No.	Signal Name	I/O
1	CD	IN
2	TXD	IN
3	RXD	OUT
4	DTR	OUT
5	SG	–
6	DSR	IN
7	RTS	OUT
8	CTS	IN
9	RI	IN



● Command Table

Basic Operation

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Forward a field	OVF	OVF	
Rewind a field	OVR	OVR	
Pause during playback	OPA	OPA	
Play	OPL	OPL	
Manual recording	ORC	ORC	
Manual recording with text	ZMR:nn:ddd···ddd	ZMR:nn	nn=01~99 (Sequence number) ddd···ddd: text (200 bytes or less)
Stop	OSP:n	OSP	n=P: Stops PLAY n=R: Stops REC no parameter stops PLAY and REC
Skip & play forward	OSF:n	OSF	n=0F Normal speed n=1F x2 speed n=2F x5 speed n=3F x10 speed n=4F x20 speed n=5F x50 speed n=6F x100 speed n=0S Normal speed n=1S 1/2 speed
Skip&play rewind	OSR:n	OSR	n=0F Normal speed n=1F x2 speed n=2F x5 speed n=3F x10 speed n=4F x20 speed n=5F x50 speed n=6F x100 speed n=0S Normal speed n=1S 1/2 speed
Record No. Search and playback	ZPR:rrrrrrrrrrrrrrrr:mm	ZPR:rrrrrrrrrrrrrrr	rrrrrrrrrrrrrrrrÅFRecord No.
Time & date search and playback	ZTP:yyyymmdhhnnss	ZTP:yyyymmdhhnnss	yyyymmdhhnnss:Time & date of playback image
Record skip	OSK:dnn	OSK	d=+ Forward – Backward nn=01 Number of skipped records: Fixed
LISTED Playback	ZLT:n	ZLT:n	n=0 OFF n=1 ON
Playback latest image	ZPM	ZPM	
A - B repeat playback	ZRP:n	ZRP:n:yyyymmddhhnnss	n=0 A - B repeat playback OFF n=1 Set repeat start point (A point) n=2 Set repeat end point (B point) yyyymmddhhnnss: Date and time of A / B point
Display COPY SETUP MENU	ZPD:n	ZPD:n	n=0 COPY SETUP MENU OFF n=1 COPY SETUP MENU ON
Display text	ZDT:n	ZDT:n	n=0 Text display OFF n=1 Text display ON
Multiscreen segment switching	OTC:m	OTC:m	m=0 4 segments m=1 7 segments m=2 9 segments m=3 10 segments m=4 13 segments m=5 16 segments
Monitor selection	OMS:nnnn	OMS:nnnn	nnnn=0001 Select MON 1 nnnn=0002 Select MON 2
Camera selection	OCS:ccccc	OCS:ccccc	ccccc: Camera CH

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Electronic zooming	OZM:m	OZM:n	m=0 Electronic zooming OFF m=1 Electronic zooming ON m=> Switch x2 -> x4 m=< Switch x4 -> x2 m=+ Switch Electronic zooming OFF -> x2 -> x4 -> Electronic zooming OFF -> ... m=- Switch x4 -> x2 -> Electronic zooming OFF -> x4 -> ... n=0 Electronic zooming OFF n=2 x2 n=4 x4 tem
Start sequence	OQT:01F	OQT:01F:01	
Stop sequence	OQS:0	OQS	
Disk selection	ZDS:k	ZDS:k	k=0 HDD normal/event recording sector k=1 HDD copy sector k=2 Disk connected to COPY 1 k=3 Disk connected to COPY 2)
Marking	ZMP	ZMP	

Alarm Control

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Alarm input	OAI:$b_1b_2b_3a_1a_2a_3a_4$	OAI	$b_1b_2b_3$: Head alarm CH information (binary) $a_1a_2a_3a_4$: Alarm CH information (binary)
Alarm input with text	ZAI:$b_1b_2b_3a_1a_2a_3a_4$: nn:ddd···ddd	ZAI:nn	$b_1b_2b_3$: Head alarm CH information (binary) $a_1a_2a_3a_4$: Alarm CH information (binary) nn=01 - 99 (Sequence No) ddd···ddd: text (200 bytes or less)
Alarm reset	OAL;n	OAL	n=0 Alarm all reset n=1 Alarm reset
Alarm suspension	MAD:n	MAD:n	n=0 Alarm suspension OFF n=1 Alarm suspension ON)
Alarm change information (LED indication)	–	ALD:n	n=0 LED OFF n=1 LED ON n=2 LED Blinking
Alarm change information	–	ALM: $b_1b_2b_3a_1a_2a_3a_4$	b1b2b3: Head alarm CH information (binary) a1a2a3a4: Alarm CH information (binary)

Setup Control

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Display SETUP MENU	MSU:n	MSU:n	n=0 SETUP MENU OFF n=1 SETUP MENU ON
Move cursor	DCR:n1n2	DCR	n1n2=A1 Right n1n2=C1 Upward n1n2=E1 Left n1n2=G1 Downward n1n2=+1 Increment parameter (+) n1n2=-1 Decrement parameter (–) n1n2=PD Move to virtual menu (SET) n1n2=P- Go back to an older page (BACK) n1n2=PU Move to upper layer (ESC)
Date & Time setup	TSU:yyyymmddhhnn	TSU	yyyymmddhhnn: Date and time
Summer time setup	MST:n	MST	n=0 Standard timen=1 Summer time
Recording mode setup	MRM:n	MRM	n=0 Normal recording mode n=2 Continuous (External timer) recording mode

Log-in/Log-out

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Log-in	OLI:uuu...uuu: ppp···ppp	OLI:n	uuu...uuu: User name (32-byte fixed length) ppp...ppp: Password (32-byte fixed length) n=0 Error in user name/password n=1 Login succeeded n=2 Login failed
Log-out	OLO	OLO	

Data Control

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Copy by specifying record	ZCR:rrrrrrrrrrrrrrr:m	ZCR	rrrrrrrrrrrrrrr: Record No. m=0 Copy to HDD copy sector m=1 Copy to media connected to COPY 1 m=2 Copy to media connected to COPY 2
Copy by specifying date & time	ZCT:$y_1y_1y_1y_1m_1m_1d_1d_1$ $h_1h_1n_1n_1$:$y_2y_2y_2y_2m_2m_2$ $d_2d_2h_2h_2n_2n_2$:s:ccc:m	ZCT	$y_1y_1y_1y_1m_1m_1d_1d_1h_1h_1n_1n_1$: Start date & time of data copy $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2n_2n_2$: End date & time of data copy s=0 Format to specify the camera CH. Fixed to 0 ccc: Camera CH No. of target for data copy m=0 Copy to HDD copy sector m=1 Copy to media connected to COPY 1 m=2 Copy to media connected to COPY 2
Data copy completed	–	ZEC:$y_1y_1y_1y_1m_1m_1d_1d_1$ $h_1h_1n_1n_1$: $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2$ n_2n_2:s:ccc:m	$y_1y_1y_1y_1m_1m_1d_1d_1h_1h_1n_1n1$ Start date & time of data copy $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2n_2n_2$ End date & time of data copy s=0 Format to specify the camera CH. Fixed to 0 ccc: Camera CH No. of target for data copy m=0 Copy to HDD copy sector m=1 Copy to media connected to COPY 1 m=2 Copy to media connected to COPY 2
Cancel data copy	ZDC	ZDC	
Erase log	ZLC:k	ZLC:k	k=1 Event input log k=2 Trouble log k=3 Access log
Log data total number inquiry	ZLQ:k:$y_1y_1y_1y_1m_1m_1d_1d_1$ $h_1h_1n_1n_1$:$y_2y_2y_2y_2m_2m_2$ $d_2d_2h_2h_2n_2n_2$	ZLQ:k:$y_1y_1y_1y_1m_1m_1$ $d_1d_1h_1h_1n_1n_1$ $y_2y_2y_2y_2m_2m_2$ $d_2d_2h_2h_2n_2n_2$:dddddddd	k=0 Record list k=1 Event input log k=2 Trouble log k=3 (Access log) $y_1y_1y_1y_1m_1m_1d_1d_1h_1h_1n_1n_1$: Start date & time of inquiry range $y_2y_2y_2y_2m_2m_2d_2d_2h_2h_2n_2n_2$: End date & time of inquiry range dddddddd: Log data total number
Log readout	ZLR:yyyymmdd hhnn:mmmmmmmm	ZLR:k:<Log Data 1>s1:<Log Data 2>s2:···:<Log Data n>sn	k=1 (Event inut log) k=2 (Trouble log) k=3 (Access log) yyyymmddhhnn Start date & time of readout logs mmmmmmmm: Total number of acquired logs (00000000 - 00000050) <Log Data n>: Log data sn: 0-9 Cyclic number
Record list acquisition	ZGR:yyyymmddnn :nnnnnnnn	ZGR<Log Data 1>s1:<Log Data 2>s2:···:<Log Data n>sn	yyyymmddhhnn: Start date & time of readout list mmmmmmmm: Total record number in the acquired list (00000001 - 00000050) <Log Data n>: Log data sn: 0-9 Cyclic number
Text acquisition	ZGT:rrrrrrrrrrrrrrr	ZGT:rrrrrrrrrrrrrrr: <TEXT>	rrrrrrrrrrrrrrr: Record No. <TEXT>: text data
Text writing	ZPT:rrrrrrrrrrrrrrr: <TEXT>	ZPT:rrrrrrrrrrrrrrr	rrrrrrrrrrrrrrr: Record No. <TEXT>: text data 200 bytes or less

Disk End Notification

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Disk end auto-notification setting	MDE:n	MDE:n	n=0 (Auto-notification OFF) n=1 (Auto-notification ON)
Disk end auto-notification	HDE:–	HDE:p	p=1 (Normal recording sector) p=2 (Event recording sector) p=3 (Copy sector)

Search Operation

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Display search editing area	ZTL:n	ZTL:n	n=0 (Search editing area OFF) n=1 (Recording event search list ON) n=2 (Recording event search thumbnail ON) n=3 (VMD search list ON) n=4 (VMD Search Thumbnail OFF) n=5 (Marking search list ON) n=6 (Maring search thumbnail ON) n=7 (Search playback display ON)

Display Operation

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Switch display	DIN:n	DIN	n=+

Inqury

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Additional disk space inquiry	QHR:p	QHR:p:sss	p=1 HDD normal recording sector p=2 HDD event recording sector p=3 HDD copy sector p=4 Disk connected to COPY 1 p=5 Disk connected to COPY 2 sss: Additional disk space (%)
ID request	QID	QID:WJ-HD309 or QID:WJ-HD316	
Interface ID request	QIB	QIB:WJ-HD309 or QIB:WJ-HD316	
Production category request	QIC	QIC:2	
Alarm information request	QLD:0	QLD:n	n=0 (No alarm) n=1 (Alarm end) n=2 (Under alarm operation)
Software version inquiry	QRV	QRV:n.nn	n.nn: Software version
Status inquiry	QSR	QSR:Status 1:Status 2···	Following response commands are sends back for "Status 1:Status 2···" msu:0 Under normal operation msu:1 Under setting oms:0001 Monitor 1 oms:0002 Monitor 2 ocs:ccccc ccccc: Camera number otc:n Multiscreen segment display pettern n=0: 4 segments n=1: 7segments n=2: 9 segments n=3: 10 segments n=4: 13 segments n=5: 16 segments oqt:01F Sequence activated ozm:0 Zoom OFF ozm:2 x2 zoom ozm:4 x4 zoom mad:0 Alarm suspension OFF mad:1 Alarm suspension ON zcd: Cascade activated zqs: 1 CH recording activated:2 CH recording activated···16 CH recording activated Recording status nn=00 (Recording stop) nn=01 (Manual recording activated) nn=02 (Event recording activated) nn=03 (Schedule recording activated) nn=04 (Emergency recording activated)

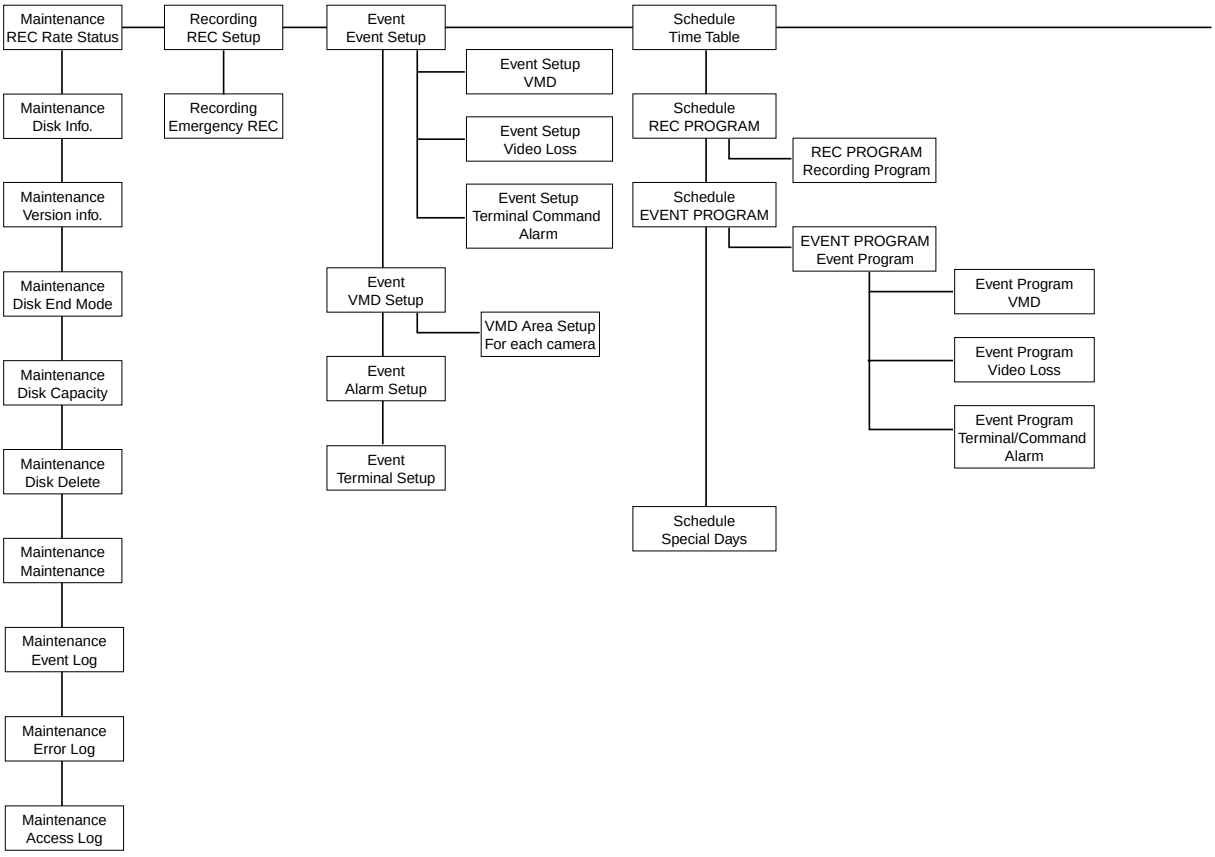
Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
			zqm: Monitor status: camera CH: Playback time Monitor status n=0 Live n=1 Live sequence n=2 Playback n=3 Other statuses Camera CH Playback time: yyyymmddhhnnss ztl:n Search editing area ON n=0 Search editing area OFF n=1 Recording event search list ON n=2 Recording event search thumbnail ON n=3 VMD search list ON n=4 VMD search thumbnail ON n=5 Marking search list ON n=6 Marking search thumbnail ON n=7 Search playback display ON zdt:0 Text display OFF zdt:1 Text display ON
Recording mode inquiry	QRM	QRM:n	n=0 Normal recording mode n=2 Continuous (External timer) recording mode
Monitor status inquiry	ZQM	ZQM:m:$a_1a_2a_3a_4$:yyyymmddhhnnss	m=0 Live m=1 Live sequence m=2 Playback m=3 Other statuses $a_1a_2a_3a_4$: Camera CH information (binary) yyyymmddhhnnss: Playback time
Recording status inquiry	ZQS	ZQS:1 CH recording activated: 2 CH recording activated···16 CH recording activated	Recording status nn=00 (Recording stop) nn=01 (Manual recording activated) nn=02 (Event recording activated) nn=03 (Schedule recording activated) nn=04 (Emergency recording activated)
Record number information	–	ZRN:sss:nn:rrrrrrrrrrrrrrr:nnyyyymmddhhnnss:ccc:x;yyy:t	sss: Unit address nn=Sequence number rrrrrrrrrrrrrrr: Record number yyyymmddhhnnss: Recording event date and time ccc: Camera CH x=0 Manual recording x=1 Schedule recording x=2 VMD recording x=3 Alarm port recording x=4 Command alarm recording x=5 VIDEO LOSS recording x=6 Emergency recording yyy: Event-activated CH t=0 Text included t=1 Text not included nn=Sequence number
Camera SYNC status inquiry	QSY:a1a2a3a4a5:b1b2b3b4b5	QSY:$a_1a_2a_3a_4a_5$ $b_1b_2b_3b_4b_5$:$s_1s_2s_3$···sm	$a_1a_2a_3a_4a_5$ - $b_1b_2b_3b_4b_5$: Range of camera CH to inquire SYNC status $s_1s_2s_3$···sm: SYNC status of each camera (s_m=0: SYNC status not found s_m=1: SYNC status found)

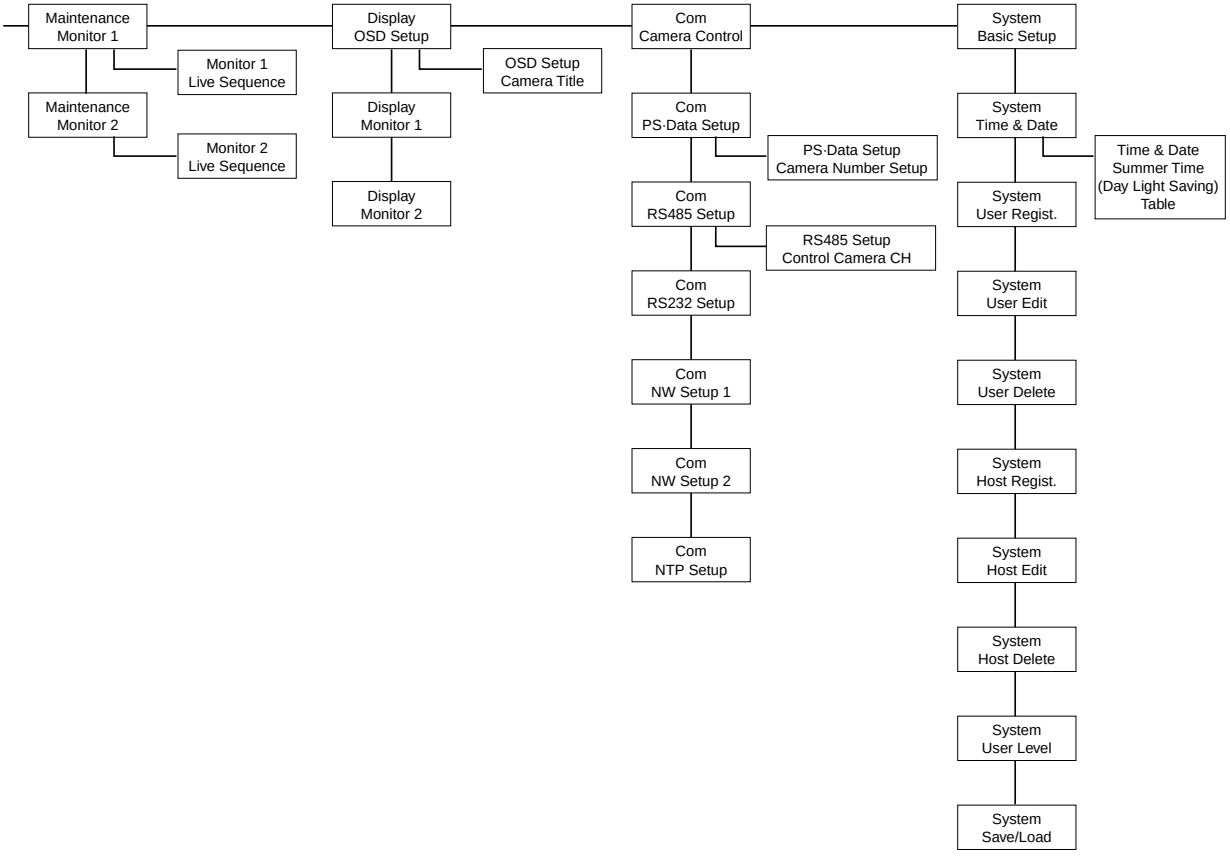
Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Record information inquiry	ZGP:rrrrrrrrrrrrrrr	ZGP:rrrrrrrrrrrrrrr: ccc:q:nnnn:yyyymmdd hhnnss:nnss:t:ssssss	rrrrrrrrrrrrrrr: Record number ccc: Camera CH q: picture quality (0 (VeryFine), 1 (Fine), 2 (Normal), 3 (Extended)) nnnn: Recording rate yyyymmddhhnnss: Recording start date and time nnss: Recording total time t=0 Text included t=1 Text not included ssssss: Record size [KB]

Communication

Item	Transmission command (ASCII)	Response command (ASCII)	Parameter (ASCII)
Communication check	RCK	RCK	

Flowchart of the SETUP MENU





Parameters and the default settings of the SETUP MENU

These are the setting parameters and the default settings of the items on the SETUP MENU.
Refer to these as reference.

Setup Menu	Setup Item	Parameter	Default Setting
Maintenance			
Disk Info.	Warning for Disk Life Time	10000h/20000h/30000h	30000h
	HDD Safety Mode	ON/OFF	ON
Disk End Mode	Normal Recording Area	CONTINUE/STOP	CONTINUE
	Event Recording Area	CONTINUE/STOP	CONTINUE
	Copy Area	CONTINUE/STOP	STOP
	COPY1	CONTINUE/STOP	STOP
	COPY2	CONTINUE/STOP	STOP
Disk Capacity	Normal Recording Area	OFF/1%/2%/･･･/10%	10%
	Event Recording Area	OFF/1%/2%/･･･/10%	10%
	Copy Area	OFF/1%/2%/･･･/10%	10%
	COPY1	OFF/1%/2%/･･･/10%	10%
	COPY2	OFF/1%/2%/･･･/10%	10%
Data Delete	Auto Delete	OFF/1DAY/2DAYS/…/10DAYS/14DAYS/ 30DAYS/45DAYS/60DAYS/90DAYS/ 120DAYS/150DAYS/180DAYS	OFF
Recording			
REC Setup	Recording Action	ON/OFF	ON
	Power ON Manual REC	ON/OFF	OFF
	Manual Recording Channel	MON2/ALL	ALL
	Color Mode	COLOR FINE/COLOR STD/ B/W	COLOR STD
	Embedded REC(Title)	ON/OFF	ON
	Embedded REC(Time & Date)	ON/OFF	ON
	REC Priority	Manual REC/Scheduled REC/Event REC	1: Manual REC 2: Event REC 3: Scheduled REC
	Audio Allocation	HD316: OFF/CAM1/CAM2.....CAM16 HD309: OFF/CAM1/.....CAM9	AUDIO1 to 4: OFF
Emergency REC	Resolution	FRAME 3D ON/FRAME 3D OFF/FIELD/SIF	FIELD
	Recording Time	1 s/2s/..../10s/20s/30s/1m/2m/..../10m/20m /30m/40m/50m/60m/MANUAL/CONTINUE	10s
	Recording Rate and Quality	Recording rate: 1ips/2ips/3ips/5ips/6ips/	
		7.5ips/10ips/15ips/30ips/60ips	
		Quality: SFA/SFB/FQA/FQB/NQA/NQB/	
		EXA/EXB	Recording rate: 3ips
			Quality: SFA
	Auto Copy	OFF/ON	OFF

Setup Menu	Setup Item	Parameter	Default Setting
Event			
Event Setup	Alarm Output	OFF/1s/2s/...../30s/40s/50s/1m/ 2m/...../5m/EXT	VMD: OFF Video Loss: 2s Terminal Command Alarm: 2s
	Output Terminal	HD316: TRM1/TRM2/...../TRM16 HD309: TRM1/TRM2/...../TRM9	
	Buzzer	OFF/1s/2s/...../30s/40s/50s/1m/2m/...../5m/EXT	VMD: OFF Video Loss: 2s Terminal Command Alarm: 2s
	Monitor1 Action	HD316: OFF/CAM1/CAM2/...../CAM16 HD309: OFF/CAM1/CAM2/...../CAM9	VMD: OFF Video Loss: Camera channel with a video loss occurrence Terminal Command Alarm: Same number for camera channel number and alarm number
	Monitor2 Action	HD316: OFF/CAM1/CAM2/...../CAM16 HD309: OFF/CAM1/CAM2/...../CAM9	VMD: OFF Video Loss: Camera channel with a video loss occurrence Terminal Command Alarm: Same number for camera channel number and alarm number
VMD Setup	(SETUP AREA)	-	-
	(SETUP ALL AREA)	-	-
	(DELETE AREA)	-	-
	(DELETE ALL AREA)	-	-
	(SENSITIVITY)	-	-
	(VMD MODE)	-	-
	(EXIT)	-	-
Alarm Setup	Alarm Auto Reset Alarm Disarm Time	OFF/1s/2s/...../30s/40s/50s/1m2/3m/4m/5m 2s/3s/...../10s	OFF 2s
Terminal Setup	Terminal Setup	N.O./N.C.	N.O.
Schedule			
Time Table	Period	12:00AM to 12:00AM	12:00AM to 12:00AM (Everyday/Time zone1) --:-- to --:-- (Except above)
	REC PROG	PROG1/PROG2/PROG3/PROG4	PROG1
	EVENT PROG	PROG1/PROG2/PROG3/PROG4	PROG1
	FTP SEND BY PERIODIC TIMER	ON/OFF	OFF
	ERROR REPORT MAIL	ON/OFF	OFF
	WARNING REPORT MAIL	ON/OFF	OFF
	NW BANDWIDTH CONTROL	OFF/32kbps/64kbps/128kbps/256kbps/ 512kbps/1024kbps /2Mbps/5Mbps/10Mbps	OFF
	Resolution	FRAME 3D ON/FRAME 3D OFF/FIELD/FRAME	FIELD
REC PROGRAM	RATE	OFF/2ips/3ips/5ips/6ips/7.5ips/10ips/15ips/ 30ips/60ips	Manual REC: 15 ips Scheduled REC: 15 ips Event REC: 30 ips
	RATE	OFF/AUTO/0.1ips/0.2ips/0.3ips/0.4ips/0.5ips/ 1ips/2ips/3ips/5ips/6ips/7.5ips/10ips/15ips/30ips/60ips	MANUAL: AUTO SCHEDULED: AUTO EVENT (PRE): 1ips EVENT (POST): 1ips
	QUALITY	SFA/SFB/FQA/FQB/NQA/NQB/EXA/EXB	SFA
	DURATION (TIME for the unit)	1s/2s/...../10s/20s/30s/1m/2m,/...../10m/20m/ ...../60m/MANUAL/CONTINUE	EVENT (PRE): 10s EVENT (POST): 30s

Setup Menu	Setup Item	Parameter	Default Setting
EVENT PROGRAM	Action Mode (The unit)	ALM/ADM	ALM
	Mode (NW)		
	REC CH	ON/OFF	ON
	Auto Copy	ON/OFF	OFF
	Preset Position	--/1/2/...../64	--
	Serial Notice	ON/OFF	OFF
	Mail Notice	ON/OFF	OFF
	FTP Alarm Sending	ON/OFF	OFF
Special Days	DATE	1/1 to 12/31	--
	Mode	MON/TUE/WED/THU/FRI/SAT/SUN	--
Switcher			
Monitor1	Live Sequence	[Operating with the buttons of the unit] 1/2/...../15/16/1-4/5-8/9-12/13-16/1-9/10-16/-- [Operating via a network] CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/9SCREEN1-9/ 9SCREEN10-16/-- --/1/2/...../64 1s/2s/...../30s	HD316: STEP1: CAM1, STEP2: CAM2, ... STEP16: CAM16 HD309: STEP1: CAM1, STEP2: CAM2, ... STEP9:CAM9 -- 2s
	Sequence Timing	INT/EXT/MON2	INT
	Auto Skip	ON/OFF	OFF
	Login Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ/--	16SCREEN
	Secret View	ON/OFF	OFF
Monitor2	Live Sequence	[Operating with the buttons of the unit] 1/2/...../15/16/1-4/5-8/9-12/13-16/1-9/10-16/-- [Operating via a network] CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/9SCREEN1-9/ 9SCREEN10-16/-- --/1/2/...../64 1s/2s/...../30s	HD316: STEP1: CAM1, STEP2: CAM2, ...STEP16:CAM16 HD309: STEP1: CAM1, STEP2: CAM2, ... STEP9:CAM9 -- 2s
	Sequence Timing	INT/EXT	INT
	Auto Skip	ON/OFF	OFF
	Login Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/	QUAD1-4
		CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ/--	
Display			
OSD Setup	Time & Date Display Position	L-UPPER/R-UPPER/L-LOWER/R-LOWER	L-UPPER
	Camera Title Display Position	L-UPPER/R-UPPER/L-LOWER/R-LOWER/ CENTER	R-LOWER
	Line Color on the Multi Screen	WHITE/GRAY/BLACK	WHITE
Monitor1	Time & Date Display	ON/OFF	ON
	Camera Title Display	ON/OFF	ON
	Alarm Display	ON/OFF	ON
Monitor2	Style of Screen	STYLE1/STYLE2/STYLE3	STYLE1
	T&D and Status Display Position	UPPER/LOWER	LOWER
	Camera Title Display	ON/OFF	ON

Setup Menu	Setup Item	Parameter	Default Setting
Com			
Camera Control	COMP	S/M/L	HD316: CAM1to CAM8: S HD309: CAM1 to CAM6: S
	TYPE	HD316: CAM1 to CAM8: COAX/RS485/OFF, CAM9 to CAM12: RS485/PSD/OFF, CAM13 to CAM16: RS485/PSD/OFF HD309: CAM1 to CAM6: COAX/RS485/OFF, CAM7 to CAM9: RS485/PSD/OFF	HD316: CAM1 to CAM8: COAX, CAM9 to CAM12: RS485, CAM13 to CAM16: RS485 HD309: CAM1 to CAM6: COAX, CAM7 to CAM9: RS485
PS·Data Setup	Unit Address(System)	001 to 099	001
	Unit Address(Controller)	001 to 099	001
	Cascade	ON/OFF	OFF
	Baud Rate	2400/4800/9600/19200/38400	9600
	Data Bit	8	8
	Parity	NONE/EVEN/ODD	NONE
	Stop Bit	1/2	1
	Retry Timing	OFF/100ms/200ms/400ms/1000ms/	OFF
	Alarm Data	OFF/0s/1s/5s	1s
	Camera Number Setup	001 to 128	HD316: 1: 001 to 16: 016 HD309: 1: 001 to 9: 009
RS485 Setup	Baud Rate	4800/9600/19200	9600
	Control Camera CH	PORT1/PORT2	HD316: CAM1 to CAM8: PORT1, CAM9 to CAM16: PORT2 HD309: CAM1 to CAM9: PORT1
	Data Bit	8	8
	Parity	NONE	NONE
	Stop Bit	1	1
RS232C Setup	Unit Address(System)	001 to 099	001
	Baud Rate	9600/19200/38400	9600
	Data Bit	7/8	8
	Parity	NONE/EVEN/ODD	NONE
	Stop Bit	1/2	1
	Retry Timing	OFF/100ms/200ms/400ms/1000ms/	OFF
NW Setup1	HTTP Port Number	00000 to 65535	00080
	User Authentication	ON/OFF	OFF
	Host Authentication	ON/OFF	OFF
	Line Speed	AUTO	AUTO
	Live Video Quality	FQB	FQB
	Video Rate	FAST/MIDDLE/SLOW/VERY SLOW	MIDDLE
NW Setup2	DHCP	ON/OFF	OFF
	IP Address	000.000.000.000 to 255.255.255.255	192.168.0.250
	Subnet Mask	000.000.000.000 to 255.255.255.255	255.255.255.000
	Gateway	000.000.000.000 to 255.255.255.255	192.168.000.001
	DNS	ON/OFF	OFF
	Primary	000.000.000.000 to 255.255.255.255	000.000.000.000
	Secondary	000.000.000.000 to 255.255.255.255	000.000.000.000
	DDNS	ON/OFF	OFF
	User Name	-	-
	User Password	-	-
	Access Interval	10m/30m/1h/6h/24h	1h
	Host Name	-	HD316: HD316 HD309: HD309
	Domain Name	-	localdomain

Setup Menu	Setup Item	Parameter	Default Setting
Network SNMP Setup	COMMUNITY	-	public
	CONTACT	-	-
	SYSTEM NAME	-	-
	LOCATION	-	-
NTP Setup	Time Adjustment	ON/OFF	OFF
	Time Zone	GMT-12:00/GMT-11:00/...../GMT-4:00/GMT-3:30/ GMT-3:00/...../GMT-1:00/GMT 0:00/GMT+1:00/ GMT+2:00/...../GMT+9:00/GMT+9:30/ GMT+10:00/...../GMT+13:00	GMT-5:00
	NTP Server Address	-	-
	Refresh Interval	1h/2h/6h/12h/24h	6h
Network FTP Setup	FTP Server Address	-	-
	User Name	-	-
	User Password	-	-
	Mode	SEQUENCIAL/PASSIVE	SEQUENCIAL
	Server Directory	-	-
	File Name	TIME & DATE BASE/SERIAL NUMBER	TIME & DATE BASE
	Interval	-	01s
	Channel to Send	CAM1 to CAM16	-
	Server Directory	-	-
	File Name	TIME & DATE BASE/SERIAL NUMBER	TIME & DATE BASE
	Duration-Pre	OFF/1s/2s/3s/4s/5s/6s/7s/8s/9s/10s	OFF
	Duration-Post	OFF/1s/2s/3s/4s/5s/6s/7s/8s/9s/10s	5s
Network Mail Setup	Attach Alarm Image	ON/OFF	OFF
	Mail Server Address	-	-
	Send to	-	-
	Address1	-	-
	From Address	-	-
	POP before SMTP	ON/OFF	OFF
	POP Server Address	-	-
	User Name	-	-
	User Password	-	-

System

Basic Setup	ADMIN Password	-	12345
	PSD User	-	ADMIN
	Auto Login	ON/OFF	ON
	Auto Login User	-	ADMIN
	Auto Logout	ON/OFF	OFF
	Priority	A priority is followed./Pre-priority/Post-priority	A priority is followed.
	"GO TO LAST" before	5s/10s/30s/1m/5m	5s
	Language	JAPANESE/ENGLISH/FRANÇAIS/ESPAÑOL/ DEUTSCH/ITALIANO	ENGLISH
	Beep (Operation)	ON/OFF	ON
	Buzzer (Alarm)	OFF/1s/...../30s/40s/50s/1m/...../5m/EXT	2s
	Shutdown Time	10s/20s/30s/1m/2m/3m/4m/5m	10s
	Auto Copy	ON/OFF	OFF

Setup Menu	Setup Item	Parameter	Default Setting
Time & Date	Date Format	YY.MM.DD/MMM.DD.YY/DD.MMM.YY	MMM.DD.YY
	Time Format	24h/12h	12h
	Auto Adjust Time	ON/OFF	OFF
	Master Time	0:00/1:00/...../23:00	0:00
	Summer Time(Day Light Saving)	ON/OFF/AUTO	OFF
	Summer Time(Day Light Saving)		
	Table	-	-
User Regist.	User Name	-	-
User Edit	Password	-	-
User Delete	Level	1/2/3	1
	Priority	1/2/...../16	1
	Default Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ	CAM1
	Camera Partitioning	--/ View/ View/Operate	View/Operate
Host Regist.	Host IP Address	-	-
Host Edit	Level	1/2/3	1
Host Delete	Priority	1/2/...../16	1
	Default Screen	CAM1/CAM2/...../CAM16/QUAD1-4/QUAD5-8/ QUAD9-12/QUAD13-16/7SCREEN/9SCREEN1-9/ 9SCREEN10-16/10SCREEN/13SCREEN/ 16SCREEN/SEQ	CAM1
	Camera Partitioning	--/ View/ View/Operate	View/Operate
User Level	WJ-HD300 Setup	LV1,LV2,LV3	LV1
	WJ-HD300 Setup Status	LV1,LV2,LV3	LV1,LV2
	Camera Setup	LV1,LV2,LV3	LV1
	Event Log Status	LV1,LV2,LV3	LV1,LV2
	Access Log Status	LV1,LV2,LV3	LV1,LV2
	Error Log Status	LV1,LV2,LV3	LV1,LV2
	Alarm Reset	LV1,LV2,LV3	LV1,LV2
	Alarm Suspended Time	LV1,LV2,LV3	LV1
	Copy	LV1,LV2,LV3	LV1
	Normal Recording Erase	LV1,LV2,LV3	LV1
	Event Recording Erase	LV1,LV2,LV3	LV1
	Manual REC Operation	LV1,LV2,LV3	LV1,LV2
	Playback Operation	LV1,LV2,LV3	LV1,LV2,LV3
	N/W Access	LV1,LV2,LV3	LV1,LV2,LV3

TROUBLESHOOTING

Check to see the following before request for repair.
Contact your dealer if a trouble cannot be removed even after checking and trying remedy.

Problem	Check item/Remedy	Page
Power is not turned on.	• Check if the power plug is surely connected to the AC outlet.	–
	• Check if the power cord is surely inserted into the power socket of the unit.	–
The HDD safety mode screen appears after turning on the power.	• The HDD safety mode is set to ON. Set the HDD safety mode to OFF.	Refer to pp. xx
No camera image is displayed on MON 1, MON 2, and the VGA monitor	• Check if the lens covers of the cameras have been removed.	–
	• Check if the power is supplied to cameras and connected devices.	–
	• Check if the cable connections are correct.	–
	• Check the brightness and contrast settings of monitors.	–
	• Check the level settings of users logging in. Can the users display camera images on monitors?	Refer to pp. xxx and xxx.
The log-in menu does not appear even if you press the button of the unit.	• Check if no user has logged in with the system controller.	–
The camera image is dim.	• Check if dust may not be sticking on the camera lens.	–
Cannot open SETUP MENU.	• Check the level settings of users logging in. Can the users display SETUP MENU on monitors?	Refer to pp. xxx and xxx.

Problem	Check item/Remedy	Page
Cannot start recording.	• Check if the HDD has an additional disk space.	Refer to p. xxx.
	• Check if the alarm operation is set to ON.	Refer to p. xxx.
	• Check the schedule settings.	Refer to p. xxx.
	• Check the recording priority settings.	Refer to p. xxx.
Cannot record the SETUP MENU of a matrix switcher	• This unit may neither record nor display setup menus because the matrix switcher system employs non-interlace signals.	–
Cannot playback images.	• Check if images have been recorded in the HDD.	Refer to p. xxx.
	• Check the level settings of users logging in. Can the users record images?	Refer to pp. xxx and xxx.
	• Check the level settings of users logging in. Can the users display camera images on monitors?	Refer to pp. xxx and xxx.
Cannot control cameras.	• Check the connection of camera you are going to control. Coaxial communication control is available for cameras connected to VIDEO IN 1 to 8.	–
	• Check if the camera you are going to control is a combination camera.	–
	• Check the camera control settings.	Refer to p. xxx.
	• Check the level settings of users logging in. Can the users control cameras?	Refer to pp. xxx and xxx.
	• Check the BUSY indicator. When the indicator is lighting, a higher-priority user is controlling cameras. You cannot control cameras until the indicator goes out.	Refer to pp. xx and xx.

Problem	Check item/Remedy	Page
Alarm operations are not activated.	• Check if alarm input signals are properly input to the ALARM IN or ALARM/CONTROL at the rear panel.	–
	• Check the settings of ALARM IN.	–
	• Check if the operation mode is set to ALM (alarm mode).	Refer to p. xxx.
"VIDEO LOSS" appears on the monitor.	• Check the camera connections.	–
	• If the camera connections are proper, refer to the dealer. Cable wires may be snapped or the unit may have trouble.	–
"THERMAL" appears on the monitor.	• Check if the ambient operating temperature is between +5 °C and +45 °C. • When the inside of unit exceeds 45 °C, "THERMAL" may appear even within the ambient temperature mentioned above. • If "THERMAL" frequently appear on monitors, refer to the dealer. The unit may have trouble.	Refer to p. xxx.
The clock does not keep correct time.	• Check if the built-in backup battery has been charged enough. If not so, supply power to the unit for 48 hours or more to recharge the battery.	Refer to p. xxx.
	• Check if the built-in backup battery has been worn out. The battery can endure for approx. 5 years. (The endurance may differ depending on conditions.)	Refer to p. xxx.
When you power on the unit, DISK CONFIG MENU will be displayed.	• Check if HDDs were added or removed. If so, DISK CONFIG MENU will be displayed automatically.	Refer to p. xxx.
	• If DISK CONFIG MENU is displayed even though no HDDs were added or removed, Refer to the dealer. The HDD may have trouble.	–

Problem	Check item/Remedy	Page
The additional disk space of HDD is not displayed.	• Check if the termination is set to STOP.	Refer to p. xxx.
	• Check if there is a partition in the HDD.	–
The available disk space of HDD is not displayed on the right bar.	• Check if the termination is set to STOP.	Refer to p. xxx.
	• Check if there is a partition in the HDD.	–
Cannot establish the connection via the network.	• Check the network settings of the unit and PC.	–
	• Check the host registration setting. When host authentication is set to ON, you cannot establish the connection from computers other than the PC registered as the host.	Refer to p. xxx.
Response or Image update takes time.	• Check if the network is crowded.	–

Inspect the power cord, power plug and connectors periodically.

The power cord insulation is damaged.	• The power cord, plug and connectors are worn out. This may result in electric shock or a fire. Unplug the power plug from the AC outlet immediately, and refer to qualified service personnel.
The power cord, plug and connectors get hot during the use.	
The power cord gets heat when bent or stretched.	

SPECIFICATION

General

Power source:	120 V AC, 50 Hz/60 Hz
Power consumption	85 W
Ambient operating temperature	+5 °C to +45 °C
Ambient operating humidity	Less than 90 %
Dimensions	420 mm (W) X 88 mm (H) X 350 mm (D) [16-9/16" (W) X 3-7/16" (H) X 13-3/4" (D)] (excluding rubber feet and projections)
Weight	9.5 kg (21 lbs.)

Input/Output

Video	Video input connectors	1 V [P-P] / 75 Ω, with auto termination loop-thru, vertical timing pulse multiplexed, x8 (1 to 8 CH) (BNC)
		1 V [P-P] / 75 Ω, with auto-termination loop-thru, x8 (9 to 16 CH) (BNC)
	Cascade input connector	1 V [P-P] / 75 Ω (BNC)
	Video output connectors	1 V [P-P] / 75 Ω, active loop-thru output, x8 (1 to 8 CH) (BNC)*1 1 V [P-P] / 75 Ω, active loop-thru output, x8 (9 to 16 CH) (BNC)
	Monitor output connectors	1 V [P-P] / 75 Ω, x2 (BNC)
	Monitor output connector (VGA)	RGB output, x1 (15-pin D-sub)
	S-video output connector	Y = 1 V [P-P] / 75 Ω, C-0.286 V [P-P] / 75 Ω, x1 (S-video output connector)
	Video output connector (front panel)	1 V [P-P] / 75 Ω, x1 (RCA pin)
Audio	Audio input connectors	–10 dB, 10 KΩ, x4 (RCA pin)
	Audio output connectors	–10 dB, 600 Ω, unbalanced, x2 (RCA pin)
Others	Expansion connector	High-speed serial interface, 480 Mbps (theoretical value), x1
	Copy connectors	High-speed serial interface, 480 Mbps (theoretical value), x2
	Control connectors	Emergency recording input*2, additional space warning output*3 (for devices connected to copy connectors), HDD trouble output*3, camera trouble output*3, trouble output*3, electricity failure recovery completion output*4, time adjust input/output*5, sequence switching input/output*5, electricity failure detection input*2, external recording mode switching*2 (25-pin D-sub) , +5 V output *7
	Alarm port	1 to 8 CH alarm input*6, 1 to 16 CH alarm input*2, 1 to 16 alarm output*3, alarm recovery input*2, alarm suspension input*5 (25-pin D-sub)
	RS-485 ports	RS-485 (full duplex/half duplex*8), x2 (RJ-11)
	DATA ports	RS-485, x2 (RJ-11)
	SERIAL port	RS-232C, x1 (9-pin D-sub)
	Ethernet port	10 Base-T/100 Base-Tx (RJ-45)

*1 When power is not supplied, video output signal was not sent from the unit even if video input signal is supplied.
*2 Non-voltage N.O. Contact, 100 mA, +5 V pull-up
*3 Open collector output, maximum under conditions of 24 V DC and 100 mA or less
*4 High (+12 V, 6.3 mA)
*5 30 KΩ, 5 V pull-up, –100 mA, N.O. Contact
*6 5 V pull-up, –100 mA, Non-voltage N.O. Contact input
*7 240 mA at maximum
*8 Changeable with the mode switch

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